

Amateur Radio



August 1998

Volume 66 No 8

Journal of the Wireless Institute of Australia



Full of the latest amateur radio news, information and technical articles, including...

- **A Sensitive Field Strength Indicator by VK3XU**
- **One Transistor Frequency Synthesiser by VK1PK**
- **Review of the Icom IC-T8A Tri-Band Handheld**

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Cover

Let's We Forget! Don't forget the Remembrance Day contest on 15 and 16 August.

A World War II vintage headphones and Morse key are pictured on a background of a WW II recruitment poster.

[Photo by Ron Fisher VK3OM]

CONTRIBUTIONS TO AMATEUR RADIO

Amateur Radio is a forum for WIA members' amateur radio technical experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for possible publication. Articles on computer disk or via e-mail are especially welcome. The WIA cannot assume responsibility for loss or damage to any material. A pamphlet, *How to Write for Amateur Radio*, is available from VK3BR Communications Pty Ltd on receipt of a stamped, self addressed envelope.

BACK ISSUES

Available direct from the WIA Federal Office, only until stocks are exhausted, at \$4.00 each (including postage within Australia) to members.

PHOTOSTAT COPIES

When back issues are no longer available, photocopies of articles are available to members at \$2.50 each (plus \$2.00 for each additional issue in which the article appears).

DISCLAIMER

The opinions expressed in this publication do not necessarily reflect the official view of the WIA, and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest National Radio Society Founded 1910

Representing the Australian Amateur Radio Service - Member of the International Amateur Radio Union

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■ Viewpoint

Editor's Comment

Electronic Repairs

In the June issue of *Amateur Radio* I had something to say about repairing TV sets (among other things). I suggested that because of the reliability of modern electronic equipment, thus seldom needing repair, there isn't much work for the TV serviceman. I also suggested that our own 22 year old colour TV had performed well in needing only one significant repair in its lifetime. I thought at the time that perhaps I was risking yet another demonstration of Murphy's Law; and I was, on two counts!

Before the June issue had emerged from the printers, our old TV set had developed another fault (same symptoms as before, different cause) and needing an hour or more to find the fault and fix it. And it now has an intermittent as well, causing the colour to be absent at switch-on, but "come good" after a period of five or ten minutes. So I stuck my neck out and nearly lost my head! Murphy triumphed yet again!

Then a letter arrived from Horst Leykam VK2HL, of Northern Beaches TV Rental and Service Co. He agreed with me about increasingly complex amateur transceivers, but told me plainly that I was wrong about TV service. To quote, he does "about 1500 repairs a year, and my workshop (and those of my competitors) are always full of sets waiting to be repaired". He assures me "the service industry is alive and well". I would like to thank Horst very much for his contribution towards putting me right. I guess we just have to accept the fact that nothing man-made keeps going for ever, particularly when its quality is dictated by market pressure. If you want high reliability you must pay for it.

One way in which high reliability is achieved in aeronautical or spacecraft applications is by use of back-up systems so that not only is the primary system "fail-safe", but its functions are handed over automatically to a second system in the event of failure; and maybe even a third after that! Navigation computers may be up to five in number, all tackling the same problems and "voting" to determine which solution is the best in the event of disagreement! But no one could afford a TV set built in accordance with these techniques!

Bill Rice VK3ABP
Editor

ar

WIA News

*Prepared, researched and compiled by
David Thompson VK2OT
Federal Public Relations Co-ordinator*

Peter Naish WIA Federal President Revealed

This month it is rather appropriate that we take a more detailed look at the person who is the Federal President of the WIA.

Having been elected as Federal President of the WIA and therefore Chairman of the Federal Council at the 1998 Annual General Meeting, Peter has been a Federal Director for three years of which two years have been spent serving as Secretary.

In total, Peter has been involved with the Federal Executive for five years, starting out as an Alternate Federal Councillor for VK2 and eventually became the Federal Councillor for NSW.

Peter Naish VK2BPN was first licensed as G3EIX in 1948 so 1998 is very special as it marks his 50th year in amateur radio.

Interests in Amateur Radio

HF DXing, mostly on CW, is Peter's main on-air activity, although he professes to not having much time for it. Regular contacts are made on frequencies between 160 metres and 70 cm with 20 metres as the favourite.

Interest in amateur radio began early with him and was promoted by the fact that, as a young person, he lived near a ham in the UK. Having made a crystal set, the young radio enthusiast found quickly that because you couldn't discriminate, the signal of the radio amateur operator was heard whenever he was on air and Peter was listening.

Peter went on to study for his licence which he gained when he was 16. Interesting to note that he passed the CW examination at the speed of 12 wpm. In awe of the peaks in the sunspot cycle at

the time, he built a transmitter/receiver out of surplus junk. The newly licensed amateur then proceeded to work the world. The radio used was a seven watt crystal oscillator PA with a single crystal.

30 September 1948 was a rather momentous occasion as that was when Peter Naish's first transmission was made on CW. The writer can attest to this fact as he has seen the original log book. The frequency was 7.063 MHz, and you will remember that one crystal. Peter couldn't afford modulation, and wasn't allowed to use it anyway, as for the first year telegraphy was the only mode permitted.

Those were the days when logs had to be examined and signed off by the local radio inspector, after which, if 12 months had passed, the operator was then allowed to use telephony. It was at this stage Peter

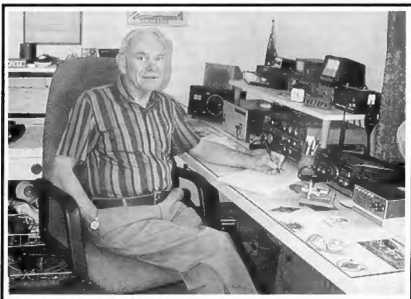
went out and bought an audio amplifier which he used for modulation purposes.

Australia

Peter came to Australia first in 1956 and took out the call sign VK2BPN. He had worked for Marconi in the UK and came here to install television Channels Seven and Two at Gore Hill on Sydney's North Shore. The history stands that Peter had the rather enormous privilege of having actually thrown the big switch to turn these media show-pieces on. He was also involved in the installation of the 10 kilowatt transmitters. Peter used to put Kodachrome 35 and Ektachrome photos to air, but of course they came out black and white at the viewer end.

It was at this stage that Peter's career took a different geographical turn and he made his way to South America. But, he was to come back to Australia in 1967 in order to install a Channel Two transmitter in each of the state capitals of Brisbane, Adelaide and Perth. It was then that Peter decided to settle here and he has since become an Australian citizen.

Peter left Marconi and started work at STC as a radio design engineer. STC is now Alcatel having changed in 1990. Peter has served the company for 31 years switching his role to the marketing of radio systems. He has project managed a number of major radio initiatives for Alcatel.



Peter Naish in his radio shack at home in Sydney.

Philosophy for the Future of the WIA and Amateur Radio

There are many areas Peter would like to see action in for the future good of amateur radio and the furthering of the role of the WIA. Some of these are to:

- Get back to working as a team and focus on the main core business. That is to protect and possibly improve or enlarge on the privileges enjoyed by the radio amateur through active liaison with the Australian Communications Authority (ACA) in Australia and the International Amateur Radio Union on a more global scale.

- Respond to the wishes or desires of the radio amateur and provide better service from a federal point of view to support the Divisions in serving their individual members.

- Maintain and enhance *Amateur Radio* magazine. The visible presence of the federal body is this high profile publication and the challenge is to communicate through this journal to the membership in an era when there is much competition from well endowed commercial ventures.

- Encourage more young talent into amateur radio by providing a more exciting and longer lasting hobby environment compared with some of the other transient technologies we see today. There will always be a place for radio. The commercial interests and the use of the spectrum prove this long lasting aspect of radio.

- Retain and improve spectrum privileges. This brings us to the subject of one of the most important issues concerning the WIA. The WIA is charged with protecting amateur use of the bands. This is in the face of tremendous and increasing pressure from commercial interests.

- Strengthen some of our specialist committees such as the ACA Liaison team, which is the focal point of the WIA. This team fulfils one of the major roles in the charter of the Institute in carrying the role as a national representative body on behalf of the Divisions of the WIA throughout Australia.

- Improve the WIA's image externally to encourage more people into amateur radio. Peter says "Just a decade ago we experienced an influx of CBers.

WIA ACA Liaison Team in Action

The WIA has submitted a response to the ACA's invitation to comment on the proposed spectrum licensing of the 9 cm band from 3.410 to 3.60 GHz in Australia.

This is only one of a number of bands which are possibly under threat from commercial interests and is shared with mainly radiolocation services. While the arrangements are quite amicable at the moment, the WIA is very much in touch with the ACA in a bid to preserve amateur access to these frequencies.

According to *Q News*, the applicants for the 9 cm band are from the telecommunications sector, wanting the band for 'wireless local loop' products whereby new telephone companies can directly enter the local call market without recourse to Telstra's wires.

It should be remembered that most popular amateur frequencies from 420 MHz upwards are available to the amateur service only on a secondary basis.

A small percentage of these frequencies are being used by amateurs and commercial interests reportedly are seeking use of these frequencies for their own purposes. Various sources report that few VKs use the narrow band segment of the 9 cm band and there is only one beacon VK5VF. (If anyone knows of any more usage, please advise the editor of WIA News.)

The WIA ACA Liaison team is continuing its close contact with the authorities on the issues surrounding the use of the spectrum.

WIA Business Plan Being Formulated

One of the tasks the Federal Executive is undertaking is the formation of a business plan which will enable the WIA to prepare for entry into the 21st century. This is considered necessary due to the changes in technology now freely available for communications and the evolution of radio communications into the new modes which are being rapidly developed.

Foresight exhibited in WIA awareness of new modes of communication, as displayed in a business plan and strategy,

should attract a new generation of communications enthusiasts. It is expected this will serve to build up the Institute's position and strength within the sphere of experimentation in the field of communications.

A strategy will be available later this year for discussion and for input from Divisional representatives. The strategy will contain a number of objectives and responsibilities which will take the WIA through into the new millennium.

Now we have the Internet. We should encourage people from there and show that amateur radio is alive and well".

After having spoken to Peter, this scribe has come away with the notion that he is a classic amateur. He built his own gear and has modified ex-service equipment to the stage where it has made many contacts. Peter says that the 'surplus gear' might not have been exactly 'EMC compliant', but fully conducive to modification and adaptation to the amateur requirement.

As I walked out of the door on that cold June evening in the north western suburbs of Sydney, I felt I had gained an insight into an amateur of the true spirit. I went away impervious to the cold with a warmth in my heart I felt when first hearing the amateurs talking on AM on 40 metres when I had just completed my first crystal set, embarking on the journey to becoming a licensed user of amateur frequencies just as Peter Naish did 50 years ago.

QSLs for VK5MIR Contacts

A situation has arisen regarding QSL arrangements for "voice" contacts made with Andy Thomas VK5MIR during his mission on the MIR Space Station.

Back in January, when the matter was originally discussed with Andy, it was intimated that the National Aeronautics and Space Administration (NASA) would probably take care of production and handling of the relevant QSL cards. It appears that this has not occurred.

QSL information put out by the MIREX organisation concerning contacts with MIR refer only to contacts with the Space Station and not to specific contacts made when Andy utilised his unique Australian callsign.

It is understandable that the American authorities may have not recognised the major significance attached to the operations of Australia's first astronaut and the first ever use of any Australian radio callsign from space. However, to the Australian public the event was one of tremendous interest and significance. Excellent media coverage was given to Andy's exploits and to amateur radio as a hobby. It would be a great disappointment if no special commemorative QSL cards were available.

It has been suggested that the South Australian Division could arrange for such a card to be produced and distributed to those who submit claims for voice contacts with VK5MIR. A recent General Meeting provided approval for the Division to go ahead and take action on this matter.

It should be noted that packet radio contacts with MIR had to be addressed to the callsign of R0MIR and as such are covered in the QSL arrangements made through the MIREX organisation.

I am in touch with Andy Thomas and the matter of a "special" QSL card has been taken up. At present Andy is investigating the situation and we await advice from him. There is apparently still a likelihood that NASA may be prepared to take some action to help in this matter.

Expressions of Interest for the Production of Amateur Radio

Very encouraging is the way the Federal Executive has referred to the response to the call for expressions of interest for the production of *Amateur Radio* magazine.

Due to the fact that *Amateur Radio* is seen as a house journal and a vehicle for news on all aspects of amateur radio, a spokesman for the executive says it is their wish to maintain and improve on the already high standard of this publication. This will be a major consideration when all responses are looked at.

It is also pointed out that, as Andy used the Australian allocated callsign mainly when over the Australian/New Zealand area, it would involve VK/ZL stations in far less postage costs to obtain a QSL card via local channels.

For the moment it is suggested that those who wish to obtain a QSL card for

Meanwhile, a study of contents of the WIA journal is occurring and this will lead to a delivery of more of what the general membership wishes to see in such a publication. Articles and news are to come under special examination. After the process is completed it is expected that the special requirements of the reader will be taken into account, resulting in a more readable communicative publication, without losing the high standard of quality that is being maintained at the moment.

a "voice" contact with VK5MIR should not send their QSL and contributions to the USA QSL point for VK5MIR contacts, but instead wait until the situation is resolved. You will be advised as soon as possible as to the final result.
[Ian Hunt VK5QX]

TIME TO DEFEND YOUR BANDS AND HARD-WON PRIVILEGES

420-450 MHz is wanted by Australian commercial interests
RF emission regulations threaten handhelds, mobile rigs, and suburban home stations with bureaucratic limits

More of 7 MHz is wanted by global broadcasters

RENEW YOUR MEMBERSHIP RECRUIT NEW MEMBERS

WIA action has:

- Cut the cost of licence fees
- Cut fees on beacons and repeaters
- Improved licence conditions
- Retained access to 50 MHz and 576 MHz; and more!

The WIA maintains representation:

- At World Radio conferences
- To the ACA
- On the Radio Communications Consultative Committee

Strength in numbers - Subs help pay



**Your
Hobby**

**Your
Voice**

■ Test Equipment

A Sensitive Field Strength Indicator

Drew Diamond VK3XU
45 Gatters Rd
Wonga Park VIC 3115

Like our SWR meter, dip meter and multimeter, the field strength (FS) indicator is one of those tools which finds frequent use, both inside and outside the shack. Some applications include checking for unwanted RF energy in interference investigations, probing RF generating equipment, such as oscillators, and for the "closing-in" phase in fox-hunting activities. More later.

The usual, or traditional, FS indicator is a passive device, generally only being of use where substantial amounts of RF power are generated. But there are instances where greater sensitivity is required, for example in QRP, or circuit testing work. Offered here are details of an untuned, sensitive FS indicator which can detect at considerable distance, using the E-field pick-up, the signal radiated from a 5 W transmitter from 1.8 to at least 148 MHz.

Circuit

The signal input, from either rod or loop, is applied to a two-diode voltage doubler

detector. The positive DC voltage developed across the first 10 n capacitor is applied to the 100 k sensitivity pot. A voltage gradient is thus established along the travel of the pot.

A common LM-386 is wired here as a DC, or servo amplifier. Circuitry inside the 386 sets the gain, and establishes the quiescent (no-signal) DC output at pin five to half supply voltage, in this instance +4.5 V. A voltage divider comprising a 3.3 k resistor from +9 V, 500 ohm trim pot and another 3.3 k to chassis produces a voltage of about +4.5 V at the slider of the trim pot.

The 1 mA meter is connected in what is virtually a bridge arrangement. Now, the relatively small positive DC detected signal applied to the (+) input of the 386 is amplified, causing the DC output at pin five to move in a positive direction, thus unbalancing the bridge and proportionately driving the meter.

Construction

If you have a nice big, clear-faced 1 mA meter, then I suggest you use it, for there

may well be applications where it is necessary to read the meter at a distance.

Meter size rather dictates your box size. Mine is housed in a home-made aluminium box measuring 70 x 70 x 125 mm (see Photo 1). A square of plain printed-circuit board is fixed under the BNC (or whatever connector type you prefer) connector mounting nut. Only the detector circuit wiring is critical, and these two diodes and two capacitors should be mounted as near the input connector as reasonably practicable.

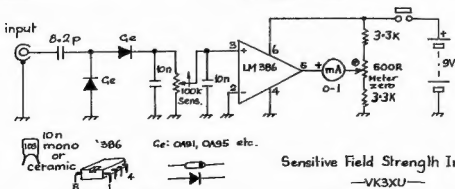
All diode and capacitor leads should be short, but leave sufficient lead length to allow your long-nose pliers to act as a heat-sink when soldering these. That is, grip the part with the jaws of your pliers between the component body, and solder joint.

My 386 is soldered to a "paddyboard", which in turn is soldered to the main board (see Ref 3), and a second small pad-board accommodates the 500 ohm trim pot and 33 k resistors. But any construction method that you prefer, even ugly style, will do.

Some electronics suppliers have a clip and holder for the 9 V "transistor" battery which powers the instrument. Fit the battery in the bottom of the case behind the meter, thus giving a low "centre of gravity" to the box.

Operation

Before applying power, check your wiring and component locations and confirm that all is correct. Set the 500 ohm trim pot to mid travel and the 100 k sensitivity pot to minimum signal. Have no pick-up devices connected to the input. Switch on. Set the "meter zero" trim pot



so that the meter indicates zero. Observe that clockwise rotation of the sensitivity pot causes no significant deflection, up or down, of the meter needle (you may see one or two minor divisions of deflection, which is no great trauma).

Some pick-up devices will be required, and a selection is shown in Photo 2. For simple electric (E) field work, we need a rod of copper, steel or brass, about 300 mm long. A knob must be fitted to the end to avoid eye poking accidents. This pick-up finds general application in E-field detection.

To detect (mainly) the magnetic (H) component, we use one of the three loops shown. The small loop with the BNC lead finds use in sniffing energised circuits, such as oscillators, RF amplifiers, powered tanks and so on. It is two turns of insulated hook-up wire, about 10 mm diameter, soldered to a BNC socket. It is handy for checking that an LC or crystal oscillator is working. It is also good for probing into tight corners and sniffing for RF energy, perhaps in places where it should not be.

The second loop comprises three turns of hook-up wire, about 50 mm diameter, soldered to a BNC plug. It is similar in application to the previous loop, but is rather more sensitive. Use it to detect signals on transmission lines, radial wires, guy wires, antenna elements and so on. Note that maximum signal is detected

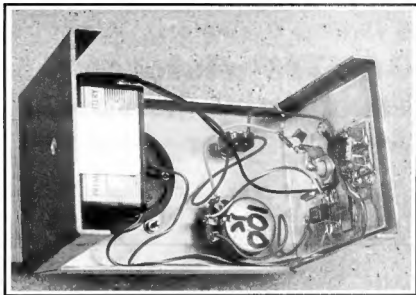


Photo 1 - The sensitive field strength indicator housed in a home-made aluminium box.

when the plane of the loop is parallel to the signal-carrying conductor.

The third, and largest loop, is made from 1.25 mm gauge steel "tie-wire". It is a single loop of about 350 mm diameter attached to a BNC plug-terminal adapter. Similar in application to the previous loop, it is more sensitive again. An HF signal may be detected at some distance from the radiating source.

For close-in fox-hunting work, your loop or antenna is connected, via coax if

required, to the FS input. To provide a correct match to the antenna, it may be necessary to include a 50 ohm through termination at the FS input. Reduce the sensitivity as you close in.

References and Further Reading

1. *Test Equipment for the Radio Amateur*; C Smith G4FZH; RSGB Publications.
2. *Radio Communication Handbook* (any edition, but preferably the 6th); RSGB.
3. "Paddyboard" *Circuit Construction*; D Diamond, AR Feb '95.

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IARU Region 3 ARDF Committee Chairman Retires

The WIA has recently been advised by the IARU Region 3 Secretariat in Japan that the Region 3 ARDF (Amateur Radio Direction Finding) Committee Chairman Chen Ping BA1HAM has retired from that post and that the directors have temporarily appointed Yoshio Arisaka JA1HQG.

The temporary appointment was a result of the many urgent items on the committee's agenda requiring attention. Items being reviewed in the ARDF area include the possible revision of the Region 3 ARDF rules to adapt them to the special conditions in our Region and consideration of the proposal from Region 1 concerning possible revision of the world-wide ARDF rules.

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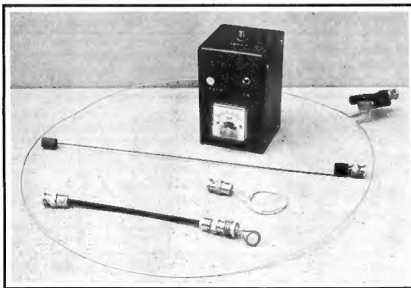


Photo 2 - The sensitive field strength indicator with the pick-up devices.

Variable Oscillators

One Transistor Frequency Synthesiser

Peter Parker VK1PK
7/1 Garran Place
Garran ACT 2605
E-mail: parkerp@pcug.org.au
Home Page: <http://www.pcug.org.au/~parkerp/>

When I first saw the circuit by LZ1BB (Ref 1), I thought it couldn't possibly work. How could one transistor operate as two oscillators and a mixer at the one time? An hour later though, I was sold - my own version of the circuit was functioning as promised.

The circuit uses two crystals to generate a frequency that is either the sum or difference of the crystal frequencies. Unlike conventional oscillator-mixer circuits, which require at least three transistors, this circuit does it all in one! I'll leave it to the engineers in our ranks to explain how the circuit works; the purpose of this article is merely to introduce the technique to Australian readers and give a few ideas as to its use.

The prototype was built inside a 23 cm aluminium cake tin to which various variable capacitors, sockets and potentiometers had been mounted to form a useful chassis for experiments such as this. In fact, the cake tin used is the exact one that previously housed the experimental Super VXO circuit described previously (Ref 2).

Apart from the use of two crystals, the circuit itself is unremarkable. Note that because the output contains at least four frequencies, one or (preferably) two tuned circuits are needed to ensure a clean output.

Reference 1 uses the technique to generate a 3.5 MHz signal from two higher frequency crystals (in the 12-16 MHz range). The advantage of this technique is the wide VXO shift obtainable from higher frequency crystals

compared to crystals around 3.5 MHz. Because the author was sceptical as to whether the technique would work at all, he initially used crystal frequencies as close as possible to those in the prototype.

Initial values were:

X1: 15.810 MHz

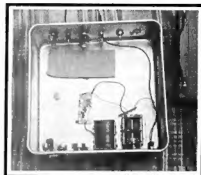
X2: 12.250 MHz

L1: 4.7 μ H

L2: 14 μ H

Note the use of the higher frequency crystal as X1. This increases the frequency shift obtainable as higher frequency crystals pull furthest in VXO circuits. Though no effort was made to optimise the value of L1, and an HC25-style crystal was used for X1, the frequency shift obtainable was a respectable 22 kHz.

After peaking the 200 pF variable



A cake tin can serve as a useful test-bed for experimental circuits.

capacitor for maximum output on 3.5 MHz, the 80 metre frequency range covered was measured. The prototype circuit covered 3.547 to 3.569 MHz, this being the difference between the fixed 12.250 MHz signal and the variable 15.810 MHz signal. The image output from the oscillator (the sum of the two crystal frequencies) turned out to be 28.039 to 28.061 MHz - allowing coverage of frequencies on two amateur bands simply by changing L2.

The next experiment was an attempt to obtain increased frequency shift by using two crystals in parallel for X1. Component values were:

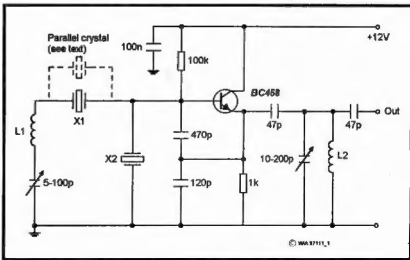
X1a, X1b: 10.240 MHz

X2: 8.312 MHz

L1: 23 μ H

L2: 1 μ H

This was the most successful circuit tried, with reliable coverage from 28.480



Schematic of the one transistor frequency synthesiser (see text for L1, L2 values).

-28.560 MHz being achieved. Coverage below 28.480 MHz was possible, but the oscillator was sluggish in starting. 10.240 MHz crystals were used in the VXO section because most builders are likely to have some of these buried inside ex-commercial VHF equipment.

Because twin-crystal VXO circuits are known to be less stable than single crystal VXO circuits, stability measurements were done to assess whether this circuit would be acceptable for use in SSB equipment.

The oscillator was left running for a little under two hours. Drift in that period was between 100 and 200 Hz. This is an excellent result, and is probably better than many older commercially-built transceivers.

The above oscillator lends itself to use in a 10 metre direct conversion receiver or double sideband transmitter. However, care must be taken to ensure suppression of spurious outputs - 30.7 MHz (3 x 10.240 MHz) is likely to be most troublesome.

An experimental 80/40/20 metre exciter circuit, using a 3.58 MHz ceramic resonator and a 10.7 MHz crystal was tried but didn't work - while the ceramic resonator was connected there was no oscillation from the 10.7 MHz crystal.

A similar circuit using a 3.58 MHz crystal was also a failure. It appears that this technique is most reliable when the two crystals used are within about a 2:1 frequency range of one another.

Conclusion

A novel one transistor circuit for generating a range of frequencies from a pair of crystals has been described. It is anticipated that the technique will find ready acceptance on the lower HF bands (where it is difficult to obtain large swings from conventional VXOs) and for equipment on ten and twelve metres, where fundamental crystals are difficult to come by but frequency agility is still required.

References

1. Popov, H. *WS 95 80 m Transmitter, The QRP Digest #6, Saturday, 15 November, 1997*
2. Parker, P. *The Super VXO Heads South, Amateur Radio, April 1998, p31.*

■

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Power-line Ruling

Strong electric and magnetic fields should be classified as "possible human carcinogens", according to experts convened by the US National Institute of Environmental Health Sciences. A panel has voted 19 to 9 in favour of this rating, the lowest for a suspected cancer hazard.

The experts urged further research into the causes of higher leukaemia rates among children living near power lines, but said they could find no apparent link between the fields and other conditions such as Alzheimer's and depression.

The public will be able to comment on the panel's conclusions before Congress approves the final report.

■

■ Equipment Review

Icom IC-T8A Tri-Band Handheld Transceiver

Reviewed by Paul McMahon VK3DIP
47 Park Avenue
Wattle Glen VIC 3096

What Is It?

The IC-T8A is a tri-band (6 and 2 m, and 70 cm) handheld, offering up to five watts out (at 13.5 V, actually about two watts with the Ni-MH pack provided) in what Icom claim as the world's smallest full-featured tri-band package. The review set had a serial number of 01137 and was supplied courtesy of Icom (Australia). The retail price is around \$700.

First Impressions

The first thing that can literally hit you in the eye with this set is the size of the antenna compared to the rest of the box. At some 227 mm this is over twice the height of the rest of the box at 107 mm. This can take quite a bit of getting used to and I found that, for the short time I had this set for review, wearing it on the belt was an invitation to getting the antenna caught up in all sorts of things.

In terms of the size of the base box, the IC-T8A is basically the same width, a little bit skinnier (depth), and a bit shorter (height) when compared to previous ICOM radios at 58, 28.5, and 107 mm respectively versus, say, the 57, 35, and 125 mm of the IC-2GXAT. The decrease in height is primarily gained by having the battery pack mounted on the back as in the common mobile phone case, rather than on the base as previously.

In summary then, apart from the antenna, the IC-T8A is about the same size as the majority of standard handhelds, with a number these days being quite a bit smaller. Icom's claim to its being the world's smallest full featured tri-band transceiver can only be taken as an indication of how many other tri-band handhelds there are out there, rather than an absolute indication of size. The photo shows the set in relation to a normal sized hand

Construction

The IC-T8A is very solidly constructed with a diecast case and a statement that it meets Military Standard 810. This standard, as far as I can determine, is a US standard describing a series of tests defining everything down to and including the types and size of dust particles used in ingress tests.

Basically, this means that the set is not waterproof, but it is pretty much sealed (when all the little rubber seals and covers are in place) and wouldn't have any problems with the occasional exposure to water, sand, and vibration, etc that it might come across in the life of an active outdoors type ham. For the rest of us it probably just means we have less to worry about if we spill coffee on it, or drop it in the dirt.

In Operation

In operation, the set is simple and straight-forward to use and produces good quality audio of quite adequate

volume for both broadcast and Ham use. I was particularly interested in its performance through the local six metre repeater (VK3RMH) where it worked well at quite reasonable distances.

The default repeater offset for six metres was not the required Australian 1 MHz, but it was relatively easily to set to the correct local offset. This repeater (and six metre repeaters in general, as far as I can tell) tends to have quite low usage



and the advent of units like the IC-T8A should go some way towards redressing this situation.

The other thing that I noticed early on was that the image performance of the set is poor, especially in the broadcast band. Scanning the nominal broadcast range of 76-108 MHz, one could be

forgiven for thinking that there were hundreds of broadcast stations, when in fact it's just the same ones repeated a number of times.

In practice this doesn't cause great problems if all you want is to listen to FM Broadcast music. But if, for example, you wanted the set to be a general receiver

to use as an IF for a converter, or really did want to listen to something on, say, 76 MHz, all you will hear is the FM station at 102.6 MHz (roughly twice the IF frequency away).

The specifications (see sidebar) specifically exclude this second image frequency and it is easy to see why. At least by the in-built S meter, there is no difference in received signal strength between the fundamental and second image. The problem, while not quite so bad on the other bands, is still quite noticeable given signals at the appropriate points.

Technical Bits

Apart from the specifications in the sidebar, and the comments above on second image response, I had very little chance of commenting on the technical aspects of this set.

Firstly, as seems common now with the last few Icom handhelds I have reviewed, there is essentially no technical information in the 35 odd pages of the otherwise well-written manual; and secondly, I was only able to have the set for a relatively short period of time, thus limiting the chances of subjecting it to testing.

The manual does, however, explain clearly how to use all of the features of the set, much the same way as for a mobile phone, etc. I did notice, however, that there is no direct mention of what the receiver is capable of outside the amateur bands. The manual says that you will get wide-band FM for the frequencies 76-108 MHz, and AM for 118 to 136 MHz, yet the specifications as listed in the sidebar (and in the manual) would suggest that you only get the ham bands with a little bit each side.

In fact, on the radio tested, it seemed to be perfectly happy to accept frequencies anywhere from 50 to 800 MHz. Unfortunately, I did not have sufficient time to try and see what the performance was like over this entire range.

Another issue I have with the set is that there seems to be no way to change the receive mode from the default for a particular frequency. That is you can't get AM or wide-band FM anywhere other than on the dedicated bands; and conversely, if you want narrow FM in these bands, you can't get it

IC-T8A Specifications at a Glance

General

Frequency coverage (Unit = MHz)

	6 metre	2 metre	440 MHz
USA	50 - 54	Tx: 144-148 Rx: 118-174 ^{*1}	Tx: 440-450 Rx: 400-470 ^{*2}
Europe	50 - 52 (Rx only)	144-146	430-440
Asia	50 - 54	Tx: 144-148 Rx: 118-174 ^{*1}	430-440
Italy	50 - 52 (Rx only)	Tx: 144-148 Rx: 136-174 ^{*1}	Tx: 430-440 Rx: 400-470 ^{*3}

^{*1} Guaranteed 144-148; ^{*2} Guaranteed 440-450; ^{*3} Guaranteed 430-440.

- Mode: FM, WFM (Rx only), AM (118-136, Rx only)
- Acceptable power supply: 4.5 to 16 V DC (negative ground)
- Number of memory channels: 123 plus 1 call for each band
- Operating temperature range (transceiver only): -10°C to +60°C (+14°F to +140°F)
- Operating temperature range (with Ni-MH battery): 0°C to +50°C (+32°F to +122°F)
- Frequency stability: ± 5 ppm (0°C to +50°C)
- Current drain (at 13.8 V DC):
 - Tx: at 5 W: 1.4 A (typical) at 0.5 W: 0.6 A (typical)
 - Rx: -max output: 200 mA (typical) standby: 70 mA (typical) power saved: 30 mA typical/1.8)
- Antenna connector: SMA (50 Ohms)
- Dimensions (w/BP-198/199): 58 (W) x 107 (H) x 28.5 (D) mm (2.3 (W) x 4.2 (H) x 1.125 (D) in)
- Weight (with BP-199): 280 gm (9.9 oz)

Transmitter

- Output power (at 13.5 V DC): 5 W or 0.5 W
- Modulation: variable reactance frequency modulation
- Maximum frequency deviation: ± 5.0 kHz
- Spurious emissions: Less than -60 dB
- External mic connector: 3-conductor, 2.5(d) mm (1/10") 2 k

Receiver

- Receive system: Double superheterodyne
- Intermediate frequencies (1st/2nd) MHz: 1st: 41.85 MHz, 13.35 MHz (WFM), 2nd: 450 kHz
- Sensitivity (at 12 dB SINAD): Less than 0.18 μ V. Less than 1.99 μ V (WFM)
- Squelch sensitivity (at threshold): Less than 0.18 μ V. Less than 5.6 μ V (WFM)
- Selectivity: Less than 15 kHz/-6 dB, more than 30 kHz/-60 dB (excluding WFM)
- Spurious response (except IF and 2nd image frequency):
 - 50, 144 MHz bands: -60 dB (typical)
 - 430/440 MHz bands: -50 dB (typical)
 - 50 dB for all bands at 1/2 IF image frequency
- Audio output power (at 13.8 V DC): 250 mW (typical with an 8 ohm load)
- External speaker connector: 3-conductor, 3.5(d) mm (1/8") 8 ohm



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COMING EVENTS

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Shepparton Hamfest - Sunday, Sept 13

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Table 1

Battery Pack	Voltage	Capacity	Output Power	Operating Time
BP-197	4.5 V	3 x Alkaline AA	0.8 W	9.1 Hrs
BP-198	4.8 V	700 mAh	1.2 W	3.8 Hrs
BP-199	6.0 V	700 mAh	2.0 W	3.5 Hrs
BP-200	9.6 V	680 mAh	4.5 W	3.8 Hrs

Note the Operating Time is for a 1:1.8 Tx:Rx:Standby ratio.

There does seem to be an exception to this mentioned in the manual for the Europe and Italian version only; however, the review set did not have this option.

Operation

As has been said, the set was simple to operate and, with the on-screen help in the menu modes, it was very easy to add memories, change offsets, and scan, etc.

Setting a frequency was simply a matter of entering it on the keypad (including the decimal point) with the repeater offset being set by using one or more presses of the "Tone/Dup" button. In a slight variation from normal practice, the secondary function of the various buttons is achieved by simply holding them down for greater than a second rather than via use of a function key.

The basic transceiver functions worked well on 6 and 2 m and 70 cm, with both Tx and Rx audio at least on a par with any other handheld I have used.

As can be seen from the photo, the LCD display and keypad layout was good with no problems with viewing in sunlight, or needing tiny fingers.

The set offers the standard scanning options to scan from frequency to frequency, or through the 100 memories, and not much else in terms of value-added features. There are also some 20 other memories for call channel (per band), and scan limits, etc.

Compared to some other sets, Icom have chosen here to stick with the basics and have not added many of the frills sometimes offered.

The supplied battery pack was a Ni-MH unit which should perform quite a bit better than the more common Ni-Cd pack, and offers a much improved shelf life and greater energy density. A number of packs are available as options,

including one taking three AA cells. The capacity, etc of these, as claimed in the manual, is shown in Table 1.

Conclusion

The IC-T8A is a rugged handheld which performs the basic functions well. The extended Rx coverage and, in particular, the FM Broadcast coverage, while not quite as good as some, is still very usable and makes an attractive package, especially if you want or need a six metre portable rig.

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Novice Notes

An Introduction to Fox Hunting

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Novice Notes Online: <http://www.pcug.org.au/~parkerp/nonline.htm>

An Introduction to Foxhunting

Foxhunting, amateur radio direction finding (ARDF), or hidden transmitter hunting is a fun activity where people compete to be the first to find a hidden radio transmitter. They do this by using receivers with directional antennas to home in on the transmitted signal.

Apart from the excitement of the hunt itself, those who like making small receivers and directional antennas will enjoy it for the challenge of building equipment that is rugged, reliable and does not give false readings. Nevertheless, constructional ability is not required to enjoy the activity. Many beginners use hand-held VHF transceivers or scanners to receive signals from the 'fox' transmitter.

Regular foxhunts are held by local radio clubs or foxhunting groups. Participants may go on their own or be part of a team. Hunts are conducted either on foot or in vehicles. An amateur transmitting licence is not necessary to participate.

A variant of foxhunting is amateur radio direction finding (ARDF). This is a rapidly growing international sport and calls for a degree of physical fitness not possessed by many amateurs. Details on ARDF are presented elsewhere in this article.

Bands to Use

Most foxhunts use the two metre (144 MHz) band. The national ARDF frequency is 145.300 MHz, although some groups still use other frequencies.

There is also some ARDF activity on 3.5 MHz. Low power transmitting and receiving equipment for this band is very easy to build. Compact directional

receiving antennas for 3.5 MHz are also interesting projects. Because most amateurs already own a portable VHF scanner or transceiver, this article concentrates on foxhunting on the two metre band.

Rules

Except for ARDF, which is an international sport (see sidebar), local foxhunt groups set their own rules. These may include things like driving carefully and requiring that the transmitter be within a certain distance of the starting point. Other rules are fairly informal.

The person setting the fox goes off and hides the transmitter. Meanwhile, participants ('hounds') gather at the starting point. They may monitor a local repeater for liaison purposes. When the transmitter has been hidden, the fox setter switches it on and announces that the fox is transmitting and that the hunt has started.

Hounds first need to know which direction to travel. They madly swing their beams around until they can get a bearing on the fox's signal. They may then consult a map and start heading in the direction of the signal.

The first individual or team that finds the fox is the winner. Those who have seen the fox transmitter walk away from it to avoid giving clues to following teams. The transmitter is turned off when the last hound finds the fox or announces on the liaison frequency that they have given up. The winning station or team is then entitled to set the next fox. Either another hunt is run or participants may socialise at a participant's house or cafe.

The 'Fox'

The transmitter used in the foxhunt must be compact and rugged. Its frequency

should be stable (crystal control is ideal) and be able to run for several hours off a NiCad or sealed lead-acid battery.

RF output powers as low as 20 milliwatts are satisfactory for pedestrian-based events of a few hundred metres. Higher powers (one to five watts) are better for longer hunts. A fox transmitter with two or three RF output power settings is desirable to save power and/or fool the competitors. Fig 1 shows a typical fox transmitter.

Because many people will be using FM receivers, it is desirable that the fox's signal is frequency modulated with an audio tone. This tone can be keyed to transmit a Morse ID. Programmable ICs are often used to send the Morse. However, 20 second digital message recorders are so cheap nowadays that these are the logical choice for those wishing to build a Morse or voice ID for a transmitter.

Antennas for fox transmitters can be almost anything. A quarter wavelength piece of wire is recommended for beginners. However, more experienced groups have used fences, bridges or sheds as antennas.

The use of directional beam antennas can also be worthwhile. This is because they can fool competitors into thinking that they are very close to the hidden transmitter. Also, competitors can be given misleading bearings by orienting the beam so that it bounces the signal off a large building or hill some distance away.

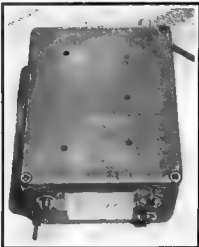


Fig 1 - A 20 milliwatt fox transmitter used for pedestrian-based hunts.

Other interesting effects can be had by experimenting with the antenna's polarisation. Effort should be made to camouflage the antenna and feedline to make finding the fox harder. For example, a tree branch and fencing wire can be made into a Yagi antenna that is almost invisible when concealed in a tree. Similarly, a wire antenna could be dunked in a lake or river.

Receiving Equipment

This is a matter for the individual competitor. The equipment used depends on whether the hunt is vehicle-based or pedestrian-based. Competitors in vehicle-based hunts typically have some sort of steerable antenna mounted on the car. Some keen hunters have bored a hole through the roof of their vehicle to allow for a rotatable pole for the antenna.

Others use an antenna on the roof rack or a vertical piece of doweling protruding through a passenger window. This last suggestion is preferred for those without beam heading indicators installed, for reasons explained later.

A two or three element quad or Yagi is the most common choice for competitors. This should be optimised for maximum front-to-back ratio rather than forward gain. A sharp null off the back or side can be very useful in direction finding. A suitable antenna was described in the February 1997 *Novice Notes* column and is pictured in Fig 2.

It is important to know the direction that the car-mounted beam is pointing. Some people use remote-control motors and indicators. However, this is not necessary for the beginner. A simple

The Sport of Amateur Radio Direction Finding

Amateur Radio Direction Finding or ARDF is a form of orienteering which was started in 1933 by the Swiss Army. Since then it has become very popular throughout the world. International competitions are held every year, mostly in Europe, and a World Championship every two years.

International competitions are held over a four to seven kilometre course. A total of five transmitters are to be found within a set time period of about 120 - 140 minutes. The competitor with the fastest recorded time is declared the winner, provided all transmitters are located.

The only assistance given is a detailed map of the area with the start and finish only marked on the map. A compass is a necessary piece of equipment. For a team event the times of the members of the team are added together and once again the lowest time would be the winner.

ARDF requires competitors to have reliable equipment, be physically fit, be able to interpret beam headings and read maps. It combines electronic, map reading and physical skills in the one activity.

All the transmitters are on the same frequency but do not transmit all the time. Instead they are switched sequentially so that only one transmitter is on air at any time. Each transmitter comes on for one minute every five minutes. Transmitters send a simple Morse code signal so that competitors can identify each one.

At each transmitter there is a punch which is used to mark a card the competitor carries to show that the transmitters have been found. Transmitters can be found in any order.

There are several categories for the competitors: Open Category; Women's Category; Junior Category (under 19 years); and Old Timer Category (over 40 years).

Every five minutes a group of competitors start, one from each of the categories above. Each category is required to find a different number of transmitters, so that following someone is not necessarily a good idea!

Two amateur bands, 3.5 MHz and 144 MHz, are commonly used. Receiving and transmitting equipment is readily available; however, the transmitters must be controlled by a licensed amateur radio operator.

Information regarding simple receiver and transmitter kits can be obtained from Ron Graham VK4BRG, PO Box 323, Sarina QLD 4737; telephone 07 4956 1155.

Abridged from material supplied by Wally Watkins VK4DO.

approach that works well is to have a nail knocked in to the side of the antenna support dowel that faces the direction to which the antenna is aimed. This method

can, of course, only be used where the antenna support dowel protrudes through the passenger window.

Inside the vehicle is a switchable RF attenuator. This is used when the signal from the fox is very strong but you still need to get a bearing. Descriptions of suitable attenuators appear in the standard handbooks. Good quality construction is important to reduce signal leakage.

Lastly, there is the receiver. This should have an S meter so that it is possible to get an indication of the strength of the received signal. SSB receive capability may also be desirable. A reasonably small multi-mode two metre transceiver (eg Yaesu FT-290R) is ideal for this application (Fig 3). Alternatively, a home-made receiver with a variable tone output to indicate received signal strength could be used instead.

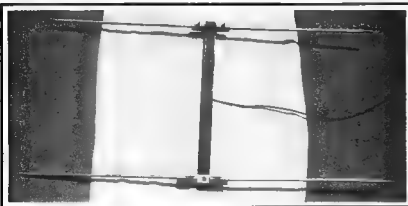


Fig 2 - A two-element Yagi used by foxhunters.



Fig 3 - The Yaesu FT-290R 144 MHz all-mode transceiver - a popular choice amongst foxhunters.

The equipment mentioned above is, of course, the ideal. However, do not be put off if all you have is an FM handheld transceiver. Foxhunts have been won by stations using these as the receiver. Tuning off frequency is sometimes a useful technique to effectively attenuate the received signal.

In many cases, vehicles cannot be parked close to the fox's hiding spot. Alternatively, signals may be so strong as to render the vehicle-mounted direction-finding system ineffective. The solution is to use a hand-held 'snoop loop'. This consists of a hand-carried two or three element Yagi, attenuator and simple receiver. This may either be a handheld transceiver, portable multi-mode transceiver, or home-made receiver. Especially important is effective shielding to prevent leakage into the receiver other than through the antenna connection.

Pedestrian hunters are limited by the size and weight of equipment that can be carried, especially if the walk will be several kilometres. A compact multi-mode transceiver or homebrew receiver, attenuator, two-element Yagi and map are all desirable for the pedestrian hunter. If the attenuator is built properly and the transceiver is well-shielded, such equipment can be used to locate the transmitter to within a metre.

Often the last hundred metres of a fox hunt can take much longer than travelling the several kilometres required to reach the general vicinity of the transmitter. This is particularly so if the transmitter, feedline and antenna are well hidden and

signals are strong. Effective triangulation of the location of the fox (including searching up and down, using horizontal and vertical polarisation and careful observation) is important here.

It is quite possible for a team to be the first to reach the general area but squander this advantage to later arrivals by having poor equipment and/or poor powers of observation. Always remember that the signal radiates from the antenna and not the fox transmitter. Thus all bearings will be towards the antenna. For this reason, the antenna is often the first part of the transmitting equipment located and you will need to follow the feedline along to find the transmitter itself.

Hiding Spots

To many, finding novel and unusual hiding spots is the best part of foxhunting. There is a peculiar pleasure in hiding a transmitter that takes other people several hours to find. If you join a foxhunting group or team, you will hear many anecdotes about past hunts where transmitters were hidden in strange places. The following are a few ideas for those whose turn it is to hide the transmitter:

Buried underground (use a fence as an antenna); under a bridge or underpass; on a peninsula, near (or in) the water; under a skateboard (preferably in use); near a sewage outflow; in a bus or train carriage (not necessarily stationary!); up a tree; in a rubbish bin; on a hill without vehicle access; shopping trolley in/near shopping centre; near a police station; close to a pager transmitter or broadcast station; inside a hollow log.

Where possible, foxhunts should be held where there are concentrations of people. Examples include main streets, shopping and restaurant areas. The reason for this is to increase the visibility of amateur radio and foxhunting in the general community. Pedestrian foxhunters are normally in a better position to answer questions from the public than those in vehicles.

Acknowledgements

I would like to thank Wally Watkins VK4DO, Ron Graham VK4BRG and Neil Pickford VK1KNP for their assistance in the preparation of this article.



HF - VHF - UHF MOBILE ANTENNA
HF - VHF - UHF BASE ANTENNA
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■ Technical

Technical Abstracts

Gil Sones VK3AUJ
C/O PO Box 2175
Caulfield Junction VIC 3161

ALIVO Fun Transceiver.

A simple 80 metre transceiver was described in the April 1998 issue of *Break In* by Fred Johnston ZL2AMJ. The design is simple to build and will provide 2-3 watts output.

Three integrated circuits and one field effect transistor are used in a simple circuit which can provide good performance. A ceramic resonator is used and tuning is possible over the range 3.53 to 3.58 MHz.

The block diagram is given in Fig 1. This is a direct conversion receiver design using the NE602 integrated circuit. The

circuit diagram is given in Fig 2. Netting is provided so that CW operation is simple. The net switch is held when tuning for zero beat and then the audio note can be set to your preference with the RIT.

The ceramic resonator appears to be similar to the ones

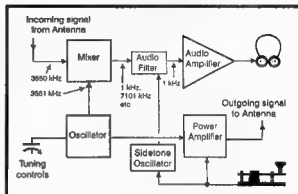


Fig 1 - Block diagram of the ALIVO transceiver.

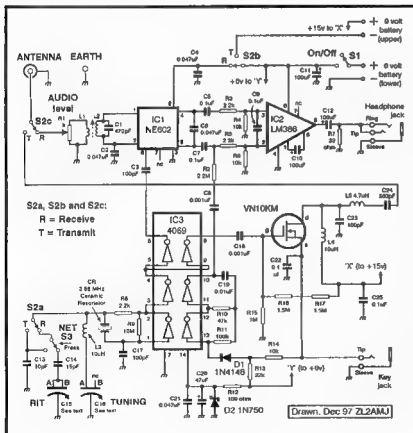


Fig 2 - Circuit diagram of the ALIVO transceiver.

obtainable from RS Components and from other local sources. Peter Parker VK1PK has used these components in projects published in *Amateur Radio*. The project is built dead-bug style on a piece of PC laminate. The variable capacitors are the plastic film variables used in transistor radios. These are available from Dick Smith Electronics or you may have some in your collection of parts.

The only inductor to be wound is L1/L2 and this uses a 6 mm slug tuned former. L2 is 40 turns of 26 SWG (0.018") enamelled copper wire. L1 is six turns of the same wire wound over the earthy end of L2. The other inductors are the small moulded RF Chokes available from most parts retailers.

The output FET should be fitted with a small heat-sink. The transceiver runs off batteries. A six volt battery runs most of the circuitry and, on transmit, a nine volt battery is placed in series to provide a 15 volt supply to the output FET amplifier.

In the May 1998 edition of *Break In*, Fred Johnson ZL2AMJ described how to run the transceiver from a 12 volt DC source. Either a plug pack or a vehicle supply could be used. The circuit is given in Fig 3. A five volt regulator and a LED are used to provide the six volt supply, and the 12 volt supply is used for the 15 volt rail.

Video Low Pass Filter

A video low pass filter design appeared in the May 1998 issue of *CQ-TV* which was intended to limit the bandwidth of the video signal from computer generated video sources and electronic test card generators.

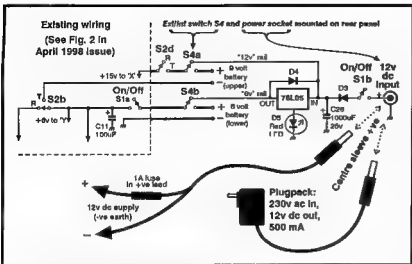


Fig 3 - External power for the ALIVO transceiver.

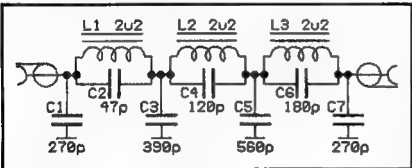


Fig 4 - Circuit diagram of the video low pass filter.

These sources of video may have a much greater bandwidth than the usual video sources due to the presence of steep pulse edges. This filter limits the video bandwidth. The design was the work of Martin Fruchte DF9CR. The filter was small enough to fit into a housing fashioned from BNC plugs and sockets.

The circuit of the filter is shown in Fig 4, the PCB pattern and overlay in Fig

5. The filter is made small by the use of surface mount components. The PCB is shown for information as the filter can be made from more usual components.

Frequency response of the filter is shown in Fig 6. The 3 dB point is just below 6 MHz and the 50 dB point is at 8.8 MHz. The filter was 0.89 dB down

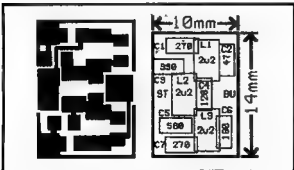


Fig 5 - PCB pattern and component overlay (much enlarged).

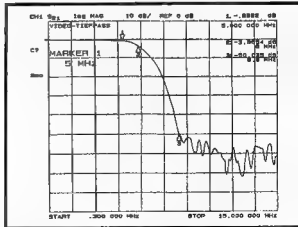


Fig 6 - Frequency response of the video low pass filter.

at 5 MHz. This is quite good performance.

DTMF Tone Frequencies

The *New Ham Companion* column in *QST* for January 1998 presented useful information concerning the DTMF tones used. These tones are used by the telephone system for dialling. The article showed the 16 button pad which is sometimes used to provide extra functions. These pads are often included on transceivers.

The tones were originally picked to avoid harmonics and confusing beats. When each button is pressed, two tones are produced. They are equal in level. Nowadays ICs generate the tones and they have been pressed into service as two tone test signals as well as their more conventional role of signalling.

The 16 button pad with the row and column tone frequencies is shown in Fig 7. The 12 button pad just uses the first three columns of the 16 button pad. ar

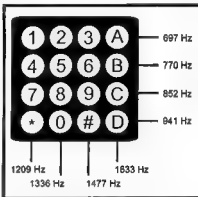


Fig 7 - 16 Button DTMF tone pad.

■ Repeater Link

Computers, Ugh!

Will McGhie VK6UU
21 Waterloo Crescent, Leamurdie WA 6076
Packet VK6UU@VK6BBR
E-mail: will@vale.faroc.com.au

Some readers of *Repeater Link* may believe that I live and breathe voice repeaters. This may have been true many years ago, but now computers occupy far more of my hobby and work time than amateur radio. The past couple of months have been consumed with sorting out computer problems and my experiences may provide some light entertainment for all amateurs, be they experts in computers, average users of computers, or even those of you who have nothing to do with computers.

I will bias this article towards the average user and the non user. The expert would not have had all the problems I have had and probably could have resolved the situation in an hour or less.

Introduction

Firstly, for all amateurs who have never used a computer and have no idea what computers are used for, an introduction. Way back I had no idea what people used computers for. I knew games could be played on them, but what serious things could be done on them?

Asking those that used computers, "What do you do on them?" elicited the stock answer, "Anything you want to, it is only limited by your imagination." This response did little for me, so I asked the next question, "So what do you do on them?" The answer came back, "All sorts of things." So it went on, with no real answers. I came to believe that little was done and most computer users just fiddled and pretended to be doing something worthwhile.

Now I can answer this question for myself. The list is a fairly long one.

Computer Uses

For a start, I'm writing this article on a computer. My early *Repeater Link* articles

were hammered out on a typewriter. What a hard way to do it! Any mistakes, or changes of mind, resulted in having to re-type the whole page or article. A computer frees you of all this.

Mistakes, changes of mind, etc are easy and fun to make on a computer. And, most important for me, is the spell checker. I fall into the very poor spelling class. The computer corrects most of my spelling mistakes, and the *Amateur Radio* editors tidy up the few the computer misses.

I tried the grammar checker but it only confused me so you are stuck with my grammar as corrected by the editors. It is a joy to write on a computer and the typewriter is no longer used at all.

Once the article has been completed on the computer I can then e-mail the article to *Amateur Radio*. The process is fast and easy. The *Amateur Radio* Production Manager then edits the article on his computer and e-mails me any comments.

My second use of a computer is for Computer Aided Drawing, called CAD. This is similar in experience to writing on a computer. Once you have mastered the drawing program it is as fast as using a pencil and ruler but with so many added advantages. The finished drawing looks perfect with all lines dead straight and at right angles. Any errors are easily changed and latter modifications edited into existing drawings. Also the CAD files can be sent electronically by e-mail.

The third use I put computers to is the Internet. A vast electronic library that contains information and computer software, along with e-mail, global chat, games, shopping - the list goes on. I often look up pin-outs of integrated circuits I can't find in my technical reference books.

I mentioned games on the Internet. The quality, sophistication and complexity of computer games on the Internet has to be seen to be fully appreciated. High quality graphics in real-time are transferred between players anywhere in the world. Special interface software has been written to allow you, via a central server to select from a list of players waiting for a game. You chat to them via the keyboard before playing a game. Some of these games are intense, to say the least. Yes, I admit to playing a few and up to four, yes four, hours can go by on one real-time strategy game like *Red Alert*.

The game is so fast and furious that the cup of coffee you brought in at the start remains untouched and cold at the end of the game. There is not time to even sip at the coffee!

It is interesting to understand how high quality graphics, that are changing as fast as you can click the mouse, can be sent over the phone line to someone on the other side of the world. The answer is the graphic is not being sent. Only a text code, to say move that object from there to there, is sent. Only a few letters are needed to move an individual graphic like a tank.

There can be hundreds of objects all moving in all sorts of directions, all in high quality graphics, but just a handful of lines of text are sent across the Internet. Very clever and it works very well. If you wondered where all the young would-be-amateurs are, a good number are playing these games on the Internet until they drop!

My fourth use of computers is to put together the VK6 WIA home page. This is largely what the Internet is made up of. Anybody who is on the Internet can publish to the world whatever they want. This is something new and very big in the world of mass communications between people, that cannot easily be controlled by Governments.

Use number five is photographic scanning and restoration. Once a photograph is scanned into a computer there is almost nothing that can't be done to enhance, restore or change the image. The resulting photograph can be far better than the original.

I have restored several old black and white photographs dating back 80 years or more for friends and relatives. The printed results are truly amazing. My mother has many old Box Brownie match

box size photographs that are just too small to appreciate fully. Once digitally enhanced and laser printed to A4 size, they show detail that could not be seen in the original, and take on a charm largely missed in the small original.

Use number six is similar to number five, but involves using a digital camera to take photographs and use the computer to enhance and modify the result. Also, single snapshots of video camera images can be captured and manipulated to produce quality still images. I have often taken low-light video frames, manipulated them to remove noise and other limitations in the image, and produced a photograph that you would not have believed came from the original video.

Use number seven is Packet Radio, the biggest mass change to the hobby of amateur radio since the introduction of voice repeaters. As a simple and easy means to keep in touch with fellow amateur radio operators, packet radio is close to perfect.

So there is my list, so far, of uses for a computer. There are many others "only

limited by your imagination". Had to slip that one in.

Due to space limitations, part two of "Computers, Ugh" will conclude next month in *Amateur Radio*.

BT

WIA New Members

The WIA bids a warm welcome to the following new members who were recently entered into the WIA Membership Register:

L21071	MR R E GOMEZ ARBALLO
L21072	MR M G DAWSON
L60396	MR S FARRANT
L70151	MR G PFEIFER
L70152	MR K D BURGESS
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VK2IEV	MR G BIVONA
VK2TG	MR R DEMKIN
VK2TNF	MR B E DUNMORE
VK3DVC	MRS R CRACHI
VK3DVD	MR F W CRACHI
VK3JNJ	MR M STANTON
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Here's an action-packed issue by any description! We join well-known DXer Martti Laine, OH2BH, as he activates a 'new country' in the Solomon Islands, charge down river rapids while working two and ten metres, pay a flying visit to Mongolia, check out the fascinating Kachina 505DSP computer-aided HF rig, and lots, lots more!

August's R&C is a veritable feast for amateurs and radio junkies, just bulging with news and great stories.

- **H40AA: profile of a DXpedition.** A new country very close to Australia. What more could you ask?
- **REVIEW: Kachina 505DSP.** New to Australia, this rig offers remarkable performance. But is it for you?
- **THE CONSTRUCTION ZONE:** Low-ohms measures. Here's a simple, low-cost way to get accurate readings
- **REVIEW: MFJ-224 analyser.** A smart two metre FM deviation checker which doubles as a sniffer receiver.
- **AMATEUR RADIO IN MONGOLIA:** You don't hear too much JT activity... but believe me, they're there!
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to refer to the *ARRL Antenna Handbook*, another is to use a computer program.

Antenna 1.8 m Above Ground

I used *NEC-Win Basic*, an antenna modelling program from Paragon Technology Inc. As shown in the diagrams the elevation pattern is quite useful. Refer to Fig 1, which shows the radiation pattern over perfect ground of an 80 m dipole 1.8 m above the ground plane, viewed end on to the wire. Note that the diagram shows 0 degrees as being vertically overhead instead of the more familiar 0 degrees for the horizon.

What does it mean? Well, signals emitted at around 30 degrees above the horizon can be expected to reach out over 1,000 km. Pretty useful for a temporary installation.

The low dipole is about 6 dB down at 30 degrees elevation and below that it becomes increasingly less effective. It is about 12 dB down at 10 degrees and below five degrees the signal diminishes rapidly.

Antenna 13 m Above Ground and Higher

Fig 2 shows the same pattern when the dipole is raised to 13 m. Note that there is very little difference for angles above 10 degrees. After increasing the height again to 30 m, the pattern starts to show

Random Radiators

How Low Can You Go?

Ron Cook VK3AFW and Ron Fisher VK3OM
C/o 3 Tamar Court, Mentone VIC 3194

Missing

Up until last month, this column had not made its scheduled appearance in *Amateur Radio* recently. Why?

When we started the column some years back, it was intended that we should not, by ourselves, write the column. That is, the appearance of the column was to be largely dependent on input from you, the reader. Indeed, this is true of most columns; it is the feedback and input from the readers that determine if the column proceeds and in which direction it goes.

Ron and I welcome any sort of material on antennas, whether it is in the form of questions, personal experiences, or interesting articles sighted elsewhere. Don't worry if it is scrappy or only part complete. We will polish it up and fill in the gaps. Remember, no letters, no regular column.

How Low Can You Go With an Antenna?

I was talking to Scotty VK2KE at the last Bendigo Hamfest. We got to talking about antennas and he mentioned some experiments he conducted some time back.

Faced with being unable to erect a mast or two, Scotty made up a dipole for 80 m and ran it along a wooden boundary fence. He was very pleasantly surprised at how well it worked.

No, it wasn't a world beater for DX; however, it got him onto the band and gave some excellent contacts around VK3 and interstate.

A low dipole radiates very well straight up. It actually has some gain in that direction! It also radiates a lot of energy down to around 30 degrees elevation. One way of seeing the effect of height is

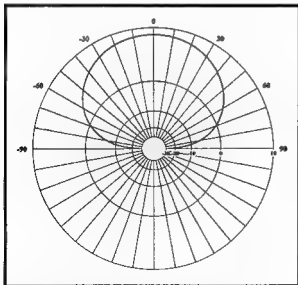


Fig 1 - Dipole, 39.6 m long, 1.8 m high, at 3.6 MHz.

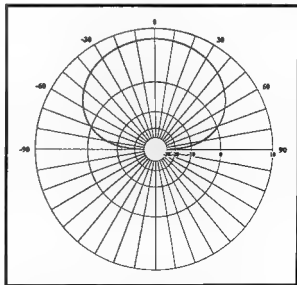


Fig 2 - Dipole, 39.6 m long, 13 m high, at 3.6 MHz.

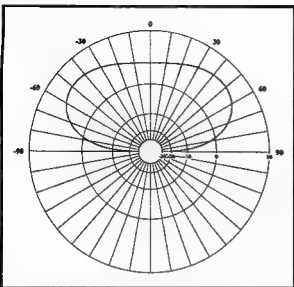


Fig 3 - Dipole, 39.6 m long, 30 m high, at 3.6 MHz.

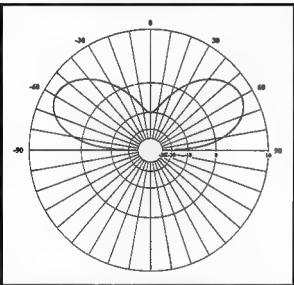


Fig 4 - Dipole, 39.6 m long, 40 m high, at 3.6 MHz.

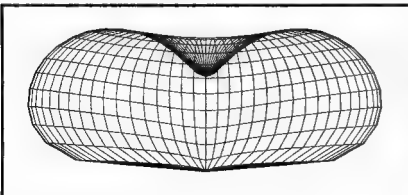


Fig 5 - Dipole, 39.6 m long, 40 m high, end view.

significant improvement for DX operation (see Fig 3). It is about 3 dB better below 30 degrees and more than that below five degrees.

At 50 m significant directivity is apparent with signals up to 10 dB better at angles of 10 degrees or less. The vertical component is up to 18 dB down.

Fig 5 shows the same pattern as Fig 4, but in a different format. It is an attempt to show a 3D view of the pattern, as Fig 4 is only a slice of the total pattern.

So, does this mean that unless you can get the antenna up 30 m or more above the ground, on 80 m you might as well run the dipole along the back fence?

Well, yes and no!

If you were out on a flat plain with high ground conductivity and there were no buildings or metal objects about, then the answer is yes. However, in

most environments, placing the antenna at 1.8 m will result in much of the signal being absorbed by ground losses and by nearby structures, to say nothing about the increased possibility of TVI. So, for most of us the answer is no.

Incidentally, the same conclusions apply for higher frequencies provided scaling is applied. To get the same pattern as for a 3.6 MHz dipole at a height of 30 m, we would need to place a 7.2 MHz dipole at 15 m and so on. Raising the 7.2 MHz dipole to 30 m gives a pattern similar to a 3.6 MHz dipole at 60 m.

Finally, a couple of rules of thumb. With antennas, the higher the better is the first rule. The second rule is, of course, the bigger the better (if it didn't blow down in the last storm, it wasn't big enough!).

Well, that's all for this time. So, it's 73 from both of us, and don't forget to write!

The two Rons.

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Introduction

The propagation of radio waves via the ionosphere is along a great circle route, a great circle being any circular path on the earth's surface that is centred at the earth's centre. These routes specify two paths between the stations, being the short and long paths. Usually the difference between them is obvious but, when the two stations tend to be antipodal, the difference between the two paths declines.

The main problem for amateurs is to know the direction (bearing or azimuth) to point an antenna for maximum radiation along the chosen great circle route. It also helps to know the distance. The diagram (Fig 1) is a simplified picture of the world. The parallels of latitude and meridians of longitude are shown along with the two paths. It is the most common basis for exchange of position on the globe. Great

circle calculations are usually done from these parameters. To find the azimuth and distances involves a branch of mathematics known as spherical trigonometry.

Thankfully, the home computer can be programmed, in Basic, to handle all the calculations. An initial attempt like that in the listing on the next page will do the calculation. It is a short program listing so can be easily transcribed. It also gives an idea of the calculations involved.

The parameters are descriptive; GCA is great circle angle. It is modified from a program published by the Ionospheric Prediction Service. You are welcome to use it, but beware, it does have shortcomings. No checking of data is done, so unreasonable data could give false results. Latitudes need to be in the range of ± 90 degrees; similarly longitudes need to be within ± 180 degrees. Inadvertent errors

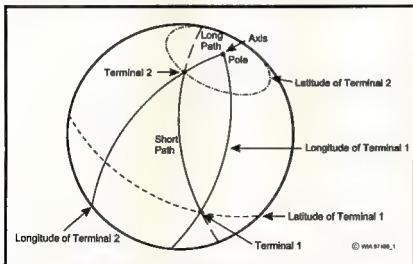


Fig 1 - Distance is the length along the path. Azimuth is the angle between the meridian of longitude and the path. By convention, the angle is from the north clockwise to the path.

Radio Theory Handbook

3rd edition

for amateur operators

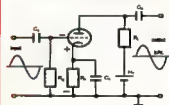
by Fred Swainston

This Australian book has been written in a concise and easy to understand manner to assist those who have no knowledge of radio theory or electronics and to be a useful reference for those working in the radio and electronics industry.

The book covers the ACA syllabus for the Novice and Amateur Operator Certificate of Proficiency.

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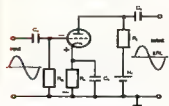
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are not picked up. For example, if the two stations are on opposite sides of the world (antipodean), or one, maybe both, stations are located at the poles, then the program may terminate with a divide-by-zero error.

Bearings from the poles are difficult to interpret as all directions are north or south toward the other pole. If results are obtained they should be regarded as suspicious, particularly the bearings. It also assumes that the earth is a perfect sphere when it is in fact slightly oblate: it resembles a pear.

A more sophisticated program, that overcomes these problems, has been written. It also provides more facilities via a menu to make it more useful. The program was developed using QBASIC and operates under DOS; a compiled version is also provided. It can operate on user provided positions and builds up a data base of destinations to augment the existing one. User provided destinations can be added to the file. The data base is a separate file so it can be edited. The originating site is set for ease but can be adjusted by selection from the menu. It also uses double precision mathematics when menu selected to provide greater accuracy. Some data editing options complete the menu selections.

The listing has not been printed due to space and transcription problems but is available from Richard VK4ZA. If you forward a 5.25 or 3.5 inch floppy disk in a disk mailer to Richard, together with your return address on a piece of paper and stamps to the value of 95 cents, he will send you a copy of his programs.

Evan Jarman VK3ANI

Technical Editor

Great Circle Distance and Bearing Program

This program is in QBASIC. It was written by Richard Atkinson VK4ZA. Acknowledgement is given to information from previous articles in *Amateur Radio* and the *ARRL Antenna Handbook*.

The purpose of DISTBRG.BAS is to calculate distances and bearings on a spherical earth to any place from origin, knowing the latitude and longitude co-ordinates of these places. Bearings will be calculated to places within a degree. Automation can be used for the calculations. Here, the input data on a series of distant places comes from a file. The

results are placed in a text file and this can be put into a word processor.

Calculations can also be done on a piecemeal basis with facilities for putting the input data and results into ASCII text files. You can choose the names of these files. The source file of distant places and co-ordinates should be built up in this way. This program will sort the output file so places appear in alphabetical order. You build up an input file of your favourite distant locations. If you change your own location, change the origin co-ordinates on menu, delete the old results file, and recalculate.

Starting the Program

Assuming "Qbasic.exe" is in your DOS directory, start it with the command: QBASIC DISTBRG.QBS. With DISTBRG.EXE, just execute DISTBRG from floppy or hard disk.

Data Files

If this program hasn't been used before, it sets up a file called "DISTBRG.INI". This holds the default information such as filenames used and origin information. Dummy origin information is put into this initially. It also causes the file "dislocs.dat" to be the input data source and

"brcalcs.dat" to be the output results, and stay that way if you desire. All this information may be changed with option 6 on the main menu.

Method of Entering Latitude and Longitude

North and south latitude are entered as positive and negative. East or west longitudes are entered as negative or positive respectively. In main menu choice 1, they are in degrees, minutes and seconds separated by commas, eg -40,25,30 is 40 degrees 25 minutes, 30 seconds south, while -130,45,30 is 130 degrees, 45 minutes, 30 seconds east.

Near the equator or Greenwich meridian, it can be 0,0,-25 for latitude or longitude, say. The seconds must be entered even if it is a zero. A minus sign for either degrees, minutes or seconds will set the whole co-ordinate south or west.

Miles, Kilometres or Nautical Miles

The program was made to output one of these units into the results file to allow the information to fit in one line. If the need is for any of the other, it can be changed on the menu. A recalculation will have to be made to generate a new results file.

Listing - Great Circle Distance and Bearings Program

```
DIM path$(2), LON(2), LAT(2): pi = 3.14159: dr = pi / 180: Re = 6370
path$(1) = "SHORT": path$(2) = "LONG": CLS
PRINT ">Great Circle Bearings and Distances<"
FOR I = 1 TO 2
  PRINT : PRINT "Terminal #"; I; " ": INPUT "Name"; NAM$
  INPUT "  Latitude/deg(N,-S-):" : LAT(I)
  INPUT "  Longitude/deg(E,-W-):" : LON(I)
NEXT I: PRINT
FOR ISITE = 1 TO 2
  PRINT "From terminal #": ISITE: "-": DL = LON(2) - LON(1)
  CA = COS(LAT(1) * dr) * COS(LAT(2) * dr) * COS(DL * dr)
  CA = CA + SIN(LAT(1) * dr) * SIN(LAT(2) * dr)
  GCA = ATN(SQR(1 - CA * CA) / CA): IF GCA <= 0 THEN GCA = GCA + pi
  CAZ = COS((90 - LAT(2)) * dr) * COS(GCA) * COS((90 - LAT(1)) * dr)
  CAZ = CAZ / SIN(GCA) / SIN((90 - LAT(1)) * dr): dist& = Re * GCA
  AZ = ATN(SQR(1 - CAZ * CAZ) / CAZ): IF AZ < 0 THEN AZ = pi + AZ
  IF SIN(DL) < 0 THEN AZ = 2 * pi - AZ
  FOR path = 1 TO 2
    LOCATE , 17: PRINT path$(path); "path:";
    LOCATE , 29: PRINT "Bearing is": CINT(AZ / dr); "degrees"
    PRINT , , "Distance is": dist& / 1000; "km"
    AZ = AZ + pi: IF AZ > 2 * pi THEN AZ = AZ - 2 * pi
    dist& = 40036 - dist&: PRINT
  NEXT path
  SWAP LAT(1), LAT(2): SWAP LON(1), LON(2)
NEXT ISITE
END
```

Contests

Ian Godsill VK3DID

Editorial Comments Continued
25 Monaco Street, Mentone VIC 3194
E-mail: vk3didi@hotmail.com

Contesting can be demanding, but good fun once you get going. Regular entrants know this, but it is very easy to forget simple things in the heat of the event.

Recently I worked and monitored the **VK Novice Contest**. I was much saddened to hear a nasty exchange of foul language between a Novice and a Full Call. I could hear how it happened, and it was not good for the spirits of either operator, nor for the image of amateur radio in Australia. Please remember the rule of listening first before transmitting on any frequency, contest or not!

This will save unpleasantness, even if you feel that you are wasting time by not calling.

I had an interesting letter from David VK2AYD about the **All Asia CW DX Contest**. David wrote: "As you know, the report sent includes your age. From the 255 QSOs (90% of which were Japanese), analysis showed: under 20, less than 1%; 20 - 30, 4.3%; 30 - 40, 21.3%; 40 - 50, 33.6%; 50 - 60, 19%; 60 - 70, 3.2%. Average age was 48!"

Thanks for the statistics, David. Very interesting indeed and not information readily available. See you in the RD contest!

Thanks this month to VK3APN, VK2-AYD, JE1CKA, OH1HS and the RSGB.
73 de Ian VK3DID

Bulgarian DX Contest

6 September, 0000-2400z Sun

This contest runs on the first Sunday of September each year on 80 - 10 m, CW only. Exchange RST plus ITU zone (P2 = 51, VK4/8 = 55, VK6-58, VK1/2/3/5/7 = 59).

Score six points for each QSO with an LZ, three points for each QSO outside your WAC continent with a non-LZ, and one point for each QSO within your WAC continent. SWLs score three points if both exchange numbers are copied, and one point if only one exchange number is copied. Multiplier equals the total ITU zones worked on each band.

The final score equals the total QSO points (all bands) times the total multiplier (all bands). Send logs postmarked within 30 days

Contest Calendar August - October 1998

Aug 1	Waitakeri 80 m Sprint (CW)	(Jun 98)
Aug 1/2	YO DX Contest	
Aug 8/9	Worked All Europe (CW)	(Jul 98)
Aug 15/16	Remembrance Day Contest	(Jul 98)
Aug 15/16	Keyman's Club of Japan (CW)	(Jul 98)
Sep 5/6	All Asia DX Contest (Phone)	(May 98)
Sep 6	Bulgarian DX Contest	
Sep 6	Panama SSB Contest	
Sep 12/13	Worked All Europe (Phone)	(Jul 98)
Sep 19/20	SAC DX (CW)	
Sep 26/27	SAC DX (Phone)	
Sep 26/27	CQ WW RTTY DX Contest	
Oct 3/4	VK/ZL/Oceania DX Contest (Phone)	
Oct 4	RSGB 21/28 MHz Contest (Phone)	
Oct 10/11	VK/ZL/Oceania DX Contest (CW)	
Oct 17	Asia-Pacific Sprint (CW)	(Jan 98)
Oct 17/18	Worked All Germany (Mixed)	
Oct 18	RSGB 21/28 MHz Contest (CW)	
Oct 24/25	CQ WW DX Contest (Phone)	

(1 Oct) to: Central Radio Club, Box 830, 1000 Sofia, Bulgaria.

Panama Anniversary Contest (SSB)

6 September, 0001 - 2359z Sunday

The Panama Radio Club invites all radio amateurs to participate in their 26th annual contest. The only category is single operator, SSB, 40/20/15 m. Exchange RS plus serial number. Score two points for QSOs with HP stations and one for others. The multiplier is the total DXCC countries worked on all bands.

Certificates of participation will be sent to all amateurs working 10 or more HP stations, upon receipt of three IRCs, and a plaque to the highest scoring station in each continent. Send log postmarked by 28 November to: Radio Club Panama Contest, Box 10745, Panama 4, Panama, or via packet to HP1BYS@HP1CDW.PANCTY.PAN. CEAM, or via e-mail to hlewis@supremeparty.com.

Scandinavian Activity Contest

19/20 September (CW), 26/27 September (Phone), 1500 Sat - 1800z Sun

The CW and Phone sections of this contest run on the third and fourth full weekends respectively of September each year. The object is for amateurs world-wide to contact as many stations in Scandinavia as possible, on 80 - 10 m (no WARC bands). Scandinavian prefixes are: LA/LB/LG/LJ (Norway); JW/JX; OF/OG/OH/OI (Finland); OFR/OGF/OH0 (Åland Isl); OJ0 (Market Reef); OX/OY;

OZ/5P (Denmark); SI/SJ/SK/SL/SM/7S/8S (SWEDEN); TF.

Categories (all band only) are: single operator, single operator QRP (max 5 W o/p); multi-operator single transmitter; SWL. Exchange RS(T) plus serial number starting at 001. For each QSO, score one point on 20, 15 and 10 m, and three points on 40 and 80 m. The multiplier is the number of call areas (0 - 9), not prefixes, for each Scandinavian country worked on each band. Portable stations without a district number count as area 0, eg G3XYZ/LA counts as LA0. OH0 and OJ0 are separate call areas. The final score is total QSO points (all bands) times total multiplier (all bands).

Use standard format for logs and summary sheets. Show duplicate QSOs with 0 points. Dupe sheets are required for 200+ QSOs. Forward separate logs for CW and phone sections. Logs on 3.5" DOS disk are welcome and must be in ASCII, one QSO per row, and labelled with the call, contest name, section/s and contest date. Include an SASE if you want your disk returned. Summary sheet must be on paper.

The mailing address alternates between SSA (Sweden), NRRL (Norway), EDR (Denmark) and SRAL (Finland) in that order. For 1998, send your log postmarked by 30 October to: Joergen Roemming OZ1JSH, Gammelgårds Alle 1 st tv, DK-2665 Vallengaard Strand, Denmark.

CQ WW RTTY DX Contest

26/27 September, 0000z Sat - 2400z Sun

In this contest, the object is to contact as many stations worldwide as possible using digital

modes (Baudot, ASCII, AMTOR (FEC and ARC) and packet) on 80-10 m (no unattended operation or operation through gateways or digipeaters), etc. Stations may operate for the full 48 hours.

Categories are: single operator unassisted, single and multi-band; single operator assisted, all band; multi-operator single Tx, all band ("10 minute" rule applies to this category EXCEPT that one - and only one - other band may be used during the 10 minute period if - and only if - the station worked is a new multiplier); multi-operator multi-Tx, all band. Single operator entrants can enter the low power section (up to 150 W) or high power (more than 150 W).

Stations may be contacted only once per band, regardless of the mode used. Send RST plus CQ zone; W/V/E will send RST, state or area, and CQ zone. Count one point for each QSO with stations in your own country, two points for each QSO outside your own country but inside same WAC continent, and three points for each QSO with stations outside your own continent.

On each band the multiplier equals the sum of US states (max 48) and Canadian areas (max 13) PLUS DXCC countries (including W and VE) PLUS CQ zones (max 40). Note: KL7 and KH6 are claimable as country multipliers only, not state multipliers. Canadian areas are VO1, VO2, VE1 (NB), VE1 (NS), VE1 (PEI), VE2, VE3, VE4, VE5, VE6, VE7, VE8, VY. The final score equals total QSO points times total multiplier from all bands.

Submit a single summary sheet, including scoring calculations for all bands plus, for each band, a separate log, duplicate check list, and multiplier check sheet. Send logs postmarked by 1 December to: Roy Gould K7IN, CQ WW RTTY Contest Director, Box DX, Stow, MA 01775, USA. A comprehensive range of plaques and certificates is offered.

1998 VK/ZL/Oceania DX Contest

Phone: 3/4 October, 1000z Sat to 1000z Sun

CW: 10/11 October, 1000z Sat to 1000z Sun

The object is for stations throughout the world to contact as many stations as possible in VK, ZL and Oceania (WAC boundaries apply) on 80 - 10 m. Contacts between different countries in Oceania are permitted, but contacts within the same country are not permitted.

Categories are: single operator all bands; multi-operator all bands; and SWL. Single operator stations are where one person performs all the operating, logging and spotting functions.

Exchange RS(T) plus a three or four digit number starting at 001 and incrementing by one for each contact.

The multiplier on each band is the number of prefixes worked on that band. A "prefix" is the letter/numeral combination forming either the first part of the callsign, or else the normal country identifier for stations using their home callsign in another DXCC country, eg W8, AG8, HG7 and HG73 are all separate prefixes. The prefix for both N8ABC/KH9 and KH9/N8ABC is KH9.

Portable designators without numbers are assumed to have a zero after the letter prefix, eg N8ABC/PA becomes N8ABC/PA0. Any calls without numbers are assumed to have a zero after the first two letters, eg RAEM becomes RA0EM. Suffixes indicating maritime mobile, mobile, portable, alternate location, and licence class do not count as prefixes, eg /MM, /M, /P, /A, /E.

For each contact score 10 points on 80 m; five points on 40 m; one point on 20 m; two points on 15 m; and three points on 10 m. The final score will be the total QSO points multiplied by the total number of prefixes worked. The same prefix can be claimed on different bands.

Use a separate log for each band, with times in UTC. Show new prefix multipliers the first time they are worked. Logs should be checked for duplicates, correct points and multipliers. Logs should be accompanied by a list of prefixes worked on each band, and a summary sheet showing callsign, name, address, category, number of valid QSOs, points and multipliers on each band, claimed score and a signed declaration that the contest rules and radio regulations were observed.

SWL logs should show date/time, callsign of station heard, callsign of station being worked, RS(T) and serial number sent by the heard station, points claimed and new multipliers.

Send logs in written style to: NZART, PO Box 40-525, Upper Hutt, NZ, by 5 December 1998. Overseas entrants please use air mail. Logs may also be sent by e-mail to nzart@clear.net.nz.

Special certificates will be awarded to the top scorers in each category, in each continent, country, and VK, ZL and JA call areas. Where justified, single band awards may also be made at the discretion of the Contest Manager.

The CW entrant with the highest score will be awarded the Frank Hine VK2QL Memorial Trophy and receive an attractive wall plaque in permanent recognition of that achievement.

Entrants may be disqualified for taking credit for excessive duplicates, unconfirmed QSOs or other scoring discrepancies, or unsporting conduct. In matters of dispute, the Contest Manager's decision will be final.

ALARA

Christine Taylor VK5CTY

ALARA Publicity Officer

16 Fairmont Avenue, Black Forest SA 5058

Packet: VK5CTY/VK5CTY

As Sally told you last month we had a successful Annual General Meeting in June but, as a consequence of that meeting, you now have a new correspondent. I have a hard act to follow but, with your assistance, I will be able to keep you up to date with ALARA news.

Please send me information about your activities. So far I am only on packet or fax but hope to have an e-mail address soon. However, a letter to the address above will reach me at any time.

Changes To The ALARA Contest

1. **The Florence McKenzie Trophy section**
As there seem to be few new Novice operators competing for the Florence McKenzie Trophy we have decided to make this part of the ALARA Contest open to all VK YLs, not just to Novices. It is still, however, a CW competition. Remember, CW contacts score double, so warm up your keys, please. OMs, we need you, too, to boost all the scores. The Trophy will be awarded to the YL with the highest score for 'all CW' contacts.

2. **Repeat contacts in the ALARA Contest**
This year, for the first time you will be allowed repeat contacts. There must be at least ONE HOUR between contacts with the SAME station on the SAME band and using the SAME mode. So, if the band stays open for four hours you could have four contacts. Now that the sunspot cycle is improving this should make the Contest more enjoyable for all.

Remember, too, if your Radio Club has a Club station callsign, all your members can operate in the Contest. Also, Girl Guides groups and Boy Scout groups, if your group has a Club licence you can participate. For the last few years the VK5GGA group have made some good scores and had a lot of fun at the same time. Why not give them some competition this year?

OMs, why not participate in the ALARA Contest this year and obtain some of the more difficult state callsigns you need for the ALARA Award? You only need 10 YL

contacts but they must include at least five of the VK call areas.

Full details of the rules for the ALARA Contest will be published in *Amateur Radio*, ready for 14 November.

A 'MIR'aculous Few Months

During the several months Dr Andy Thomas was on the Russian MIR space station, many amateurs have enjoyed either or both voice and packet contacts with him. Others have listened with interest or kept track of the path of the station on their computers. It has been a most exciting time for us and good publicity for amateur radio.

I know of three YLs who made contact with MIR. Meg VK5AOV had a packet contact first, then the very day she sent off her QSL card, she had a voice contact as well. She has now received her two cards, one from R0MIR-1, and one from VK5MIR. Meg also was featured in the *Murray Valley Standard* where she said that her stomach 'lurched' when she heard Andy ask to speak to the Murray Bridge station. Once the two-way contact was established, the butterflies retreated, of course.

Meg found that Andy was very interested to hear what the season had been like in the Murray Bridge area, and he was specially interested to hear about the possibility of the mouth of the Murray closing up for lack of water flowing in it. This contact lasted almost the whole of the seven minutes he was over the horizon for her. Since the item appeared in the local paper Meg has been stopped in the street several times which shows how interested people are in it. A number of them

have no doubt discovered one of the benefits of amateur radio.

Gwen VK3DYL made her contact without a satellite tracking program. Instead, she relied on the local two metre stations to tell her when the next pass was due. She was as thrilled as all of us were to have Andy come back to her call. She says, "never underestimate the power of a YL voice" with which I would agree wholeheartedly.

Mary VK5AMD found that perseverance does eventually pay off just two days before Andy closed his station down. She had been sleeping with her handheld beside the bed (her OM, Murray, is not an amateur, just a very tolerant man). As soon as she heard a voice contact she jumped out of bed and got into the car which she then drove up a nearby hill to improve her take-off position.

During the several weeks Mary kept trying to make contact she listened to many QSOs with other amateurs who asked all sorts of questions, so she knew a lot about conditions on MIR. She had heard with interest of all the places Andy had been able to identify as he flew over so high. This had all been very interesting and had made the sleepless nights worthwhile. The contact she did eventually make was at 0412 CST (Andy was living on Moscow time on the space craft).

Mary has also found that the people living around Bordertown were very interested to read about her experience in the *Border Chronicle* even though she said that most of the visitors to her home thought she was mad getting up at all hours of the night.

She was even asked to give a talk about her experience to the local branch of

Neighbourhood Watch. They were interested in her explanation of amateur radio and ALARA for the rural woman, as well as in her conversation with Andy.

Bad News About Members

Sadly we have two SKs to report. Betty ZLIUBZ, whom a number of us met in Perth last year, passed away in February; and Daphne VK2KDX, a long time member of ALARA, passed away recently after a long battle with leukaemia. Our thoughts go out to the families of our friends.

We also extend our sympathy to Poppy VK6YF on the passing of her OM, Les VK6EB, after a number of years of ups and downs. We were all glad he was well enough to join us during the ALARAMEET in Perth.

Next Year's ALARAMEET

Don't forget to start planning to be in Brisbane in September and October 1999. Bev VK4NBC is busy planning an interesting program for all the visitors. We only meet once every three years so it is a special occasion.

Philately and Radio

We have told you previously in these columns about Marilyn VK3DMS and her success in combining these two interests. She has now been asked to display her "Radiomania" collection at the 29 October meeting of the Royal Melbourne Philatelic Society. This is a great honour on which we congratulate her. We will await her stories with interest on our Monday Nets.

News for This Column

This column depends on news from you. Please tell me your news by mail to my postal address, or by packet radio to VK5CTY @VK5TTY.

New QSL Bureau Addresses for India

In a letter to Region 3, Adolf Shepherd VU2AF, Honorary General Secretary of ARSI (Amateur Radio Society of India), has indicated that the Mumbai (Bombay) postal address for their QSL Bureau service has changed.

The new address for the Mumbai ARSI QSL Bureau is 'Post Box 9282 Mumbai 400 086 INDIA'. The current address will remain until 31 December 1998. The ARSI also operates a QSL Bureau in Chennai (Madras). The postal address is 'Post Box 1142 Chennai 600 061 INDIA'. QSL Bureau operators are advised to make use of these Bureaux for Indian amateurs.



Mary VK5AMD at the operating position of her mobile station from where she had a voice contact with Andy Thomas VK5MIR (see text).

YAESU VX-1R MICRO DUALBAND HANDHELD TRANSCEIVER

**Wide receiver coverage, leading edge features,
and Lithium Ion technology, packaged for
convenience at a price that will surprise!**



VX-1R shown full size

The new VX-1R is one of the world's smallest dualband amateur rigs, sporting a 2m/70cm transceiver with wideband receiver in a case sized just 81 x 47 x 25mm WHD. It has impressive memory and scanning facilities as well as receive coverage of VHF and UHF TV, AM and FM broadcast bands, AM aircraft band and other public service frequencies from 76 to 999 MHz*.

Leading-edge technology from the VX-1R's 500mW MOSFET power amplifiers together with the supplied 3.6V 700mAh high-capacity Lithium Ion battery will provide many hours of superb local communications. Up to 1W output is available for longer range when external DC power is used. Extensive battery-saving features together with the Li-Ion battery's 2-hour recharge system yields long operating times under real-world conditions. The VX-1R's extensive memory system provides 291 memory channels, most with Alpha-numeric labelling for easy recognition. A Smart Search™ system allows you to search a portion of a band you define, then loads any active frequencies into 31 special Smart Search™ memories for later inspection (great for finding activity when visiting a new area).

Besides being a fully-featured dual-band amateur transceiver, the VX-1R has extraordinarily wide receiver frequency coverage - you'll also be pleasantly surprised by the great audio on the FM broadcast band. A dual-watch facility is provided - and together with the AM, FM-narrow and FM-wide reception modes - you'll be having fun even when you're not operating on the amateur bands. For selective calling and listening, the VX-1R also includes a CTCSS encoder/decoder and a 104-code Digital Code Squelch (DCS) system as well as a Tone Search facility for both CTCSS and DCS encoded transmissions.

A great range of accessory lines for the VX-1R are available such as speaker/mics, a carry case, as well as a battery holder for 1 x AA alkaline battery which includes an inbuilt voltage step-up converter. Computer programming of the VX-1R is available via the optional ADMS-ID programming kit.

So when Yaesu says "Dick Tracy, we're waiting for your call" you can be sure they have good reason to do so. In fact, call into your Dick Smith Electronics' Hams Shack store for a demo of this fun new rig. Or phone 1300 366 644 for a copy of the Yaesu colour brochure.

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An advanced way to program many of the functions of Yaesu handheld and mobile transceivers. Each package consists of an interface that plugs into the serial port of a PC and connects to the transceiver via its microphone socket (for handhelds) or its Packet socket (for mobiles). Also provides easy-to-use 3.5" (1/4") PC software with pull down menus that allow for programming and naming of memory channels, selection of output power, CTCSS tones, scan and battery saver operation, plus much more.

ADMS-1D suits FT-10, 11R, 50R/RO, 51R, VX-1R D 3753

ADMS-2D suits FT-3000M, 8000R, 8500, 8100R D 3759

\$799⁹⁵

NEW FOR '98



Revex W570 HF/VHF/UHF SWR/PWR Meter

Top of the line performance! The W570 provides switchable 1.6-160, 400-525, 700-1100, and 1240-1300MHz coverage, with measurement of 3 power levels (5, 20, 200W) and SWR. External UHF sensor uses N-type sockets, with remote mounting for easier cable connection to the meter. Measures 120 x 80 x 155mm.

D 1377

\$299



LP-1300 Log Periodic Yagi

The Maldol LP-1300 is a Log Periodic Yagi beam antenna designed to provide useful gain across the 100 to 1300MHz range. Ideal for scanner enthusiasts and ham operators needing a directional wideband antenna. Consists of a 17-element Yagi with a special feed system providing low SWR (less than 2.0:1) across the 100-1300MHz range.

Gain: 6.0dBi to 10.0dBi
Boom length: 1.46m
Suitable mast: 28-60mm diameter
Max wind speed: 40m/sec
Connector: SO-239

D 4628

\$249



2m 30W RF Power Amplifier

Ideal for use at home or in the car.

It works with inputs from 0.5 to 5W, and produces up to 30W output with just 3W input. A switchable 12dB gain low noise GaAs FET pre-amp is included for use in quiet RF areas. The amplifier includes a large heatsink, fused DC power lead, SO-239 input/output connectors, and simple LED metering for DC supply voltage and relative RF output power. Frequency range 1.44-1.48MHz FM only, but can be modified for SSB use. Requires 13.8V DC at 6A max. Size 125 x 48 x 147mm (WHD) including protrusions.

D 2515

\$99⁹⁵



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AWARDS

John Kelleher VK3DP

Presidential Committee Official
4 Brook Crescent, Box Hill South, VIC 3108
TEL: 03 9589 8888

Every February and August the Australian DXCC listings are published. This would not be possible if it were not for the constant supply of upgrades which arrive at this office.

Speaking of upgrades, some are of the opinion that they have to save up their contacts to achieve a list of 25 before submitting this list for addition to their qualifications. Not so. That rule applies only during periods of high activity, where 25 new contacts can be achieved in a day or so.

To supplement this, and to recognise that we are presently just rising from a period of very low activity, the rule is relaxed to allow you, the hard working operator, to submit ANY number of additions to your listings, whatever the mode.

Finally, please submit your additions strictly in numerical and alphabetical order of call sign, and listed by mode, whether SSB, CW, or OPEN.

Gibraltar - The ZB2 Award

Work five different ZB2 stations. No time, band or mode restrictions. SWL OK. GCR list and \$US3.00 to: Gibraltar Amateur Radio Society, PO Box 292, Gibraltar.

Guam - Worked Guam Award

Contact any five Guam stations. No time, band, or mode restrictions. GCR list and \$US2.00, or equivalent in US stamps to: MARC, Box 445, Agaña, Guam 96910.

Guantanamo Bay - Worked All Guantanamo Award

Work six KG4 stations during a three year period and send GCR list for stations still on base, and photocopy of cards for amateurs no longer stationed there. No charge, but postage or IRCs would be thoughtful. Not available for SWL. Send to: GARC PSC1005, Box 73, FPO, AE, 09593-0011, USA.

Italy - CDM Certificado del Mediterraneo Award

Provide proof of having contacted at least 25 countries surrounding the Mediterranean

since 1 January 1993. Endorsements for Phone, CW, Mixed or RTTY. Cards must be sent unless certification is made by an IARU Society Award Manager. Send log entries with QSO data in alphabetical order. Fee is \$US5.00, or 10 IRCs. Apply to: CDM Award Manager ARI, Via Scarlatti 31, I-20124 Milano, Italy.

Eligible countries are Italy, Monaco, France, Corsica, Morocco, Libya, Egypt, Lebanon, Greece, Mt Athos, Dodecanese, Sardinia, Sicily, Turkey, Gibraltar, Spain, Ceuta & Melilla, Syria, Israel, Slovenia, Croatia, Bosnia, Balearic Isl, Tunisia, Algeria, Brit Bases Cyprus, Malta, Crete, Yugoslavia, Albania, and Cyprus.

DXCC Listings

SSB - Roll of Honour	VK3DS	226/236		
VK5MS	327/381	VK3ETM	226/227	
VK4LC	327/374	VK3SM	222/242	
VK5WO	327/360	VKSBO	217/222	
VK6LK	327/352	VK3DD	213/217	
VK4OH	327/344	VK4BAY	213/214	
VK3QI	327/341	VK4EJ	210/212	
VK3AKK	327/338	VK4XJ	204/216	
VK3DYL	327/333	VK3DVT	201/204	
VK2FGI	326/332	VK3EFT	198/201	
VK6RU	325/380	VK4AU	189/190	
VK6HD	325/350	VK6WJH	183	
VK1ZL	325/331	VK4IL	176	
VK5XN	324/345	WA1MKS	171	
VK4UA	324/338	VK6APH	168/169	
VK3AMK	321/340	VK2BQS*	164/167	
VK6NE	321/337	VK2NO	157	
VK5EE	321/327	VK4IT	153/155	
VK2AVZ	319/330	VK4CHB	152/153	
VK7BC	319/329	VK4ARB	149/150	
VK3YJ	319/325	VK4DMP	147/148	
VK2DEJ	317/323	VK2HV	142	
VK4AAR	317/321	VK2SPS	141/143	
VK3CSR	316/325	VK3DNC	141/142	
VK6VS	315/319	VK6LC	139/140	
SSB - Ordinary List	VK2EQ	137	VK2BQ	139
VK6AJW	312/317	VK6LG	134/135	
VK6APK	310/315	VK3DQ	127/141	
VK5WV	306/326	T12YLL	127	
VK6PJ	306/312	YC8EMH	126/127	
VK3JI	304/319	VK6ABS	126	
VK6RO	301/307	VK3TI	122/125	
VK3IR	295/298	VK4VIS	122/124	
VK4DP	293/305	HL4YD	118/119	
VK2WU	291/296	VK2GSN	117/118	
VK4BG	286/302	VK7WD	115/116	
VK3CYL	282/288	VK5GZ	112/114	
VK4SJ	269/270	VK4NJQ	111/115	
VK3GI	263/267	VK6NV	111/113	
VK3DP	261/264	JARXDM	111	
VK3VQ	259/276	VK4EMS	111	
VK5IE	258/261	C21DJ	109	
VK4CY	254/256	JE9EMA	108	
VK4LV	250/252	HC2HYB	106/107	
VK4ICU	249/251	VK4LW	105	
VK6ANC	244/248	VK5UO	104/107	
VK2PU	243/247	JN6MIC	103/104	
VK3CIM	242/246	ZS6IR	102/104	
VK3UY	242/244	KB2NEK	102/103	
VK6YF	238/241	C21NJ	102	
VK7TS	237/238	VK2FZR	102	
VK2CKW	234/237	JH3OHO	101/103	
VK6APW	228/229	VK4BP	100	
		ON4BCM	100	

CW - Honour Roll

VK3QI	327/339	VK4UA	324/340
VK6HD	323/344	VK3IA	323/371
VK3XB	315/350	VK6AMK	322/341
CW - Ordinary List		VK2AVZ	320/330
VK5WO	311/327	VK3XB	317/347
VK3KS	302/330	VK4AAR	316/320
VK6RU	275/319	VK3JI	315/344
VK3JI	271/296	Open - Ordinary List	
VK3AKK	270/275	VK4DP	309/323
VK4LV	252/259	VK6PY	308/316
VK3DP	237/240	VK6RO	307/313
VK2CWS	235/237	VK3UY	307/310
VK7BC	234/243	VK3DP	303/307
VK4ICU	231	VK4DV	301/316
VK3DQ	228/255	VK4BG	293/312
VK4DA	223/225	VK4CY	289/293
VK3EBP*	220/222	VK3CYL	282/288
VK3CIM	219/220	VK3VQ	274/291
VK4DP	205/216	VK4LV	272/279
VK6MK	202/204	VK4ICU	271/273
VK7RO	201/204	VK3CIM	266/270
VK6PY	190/194	VK5BO	264/301
VK5GZ	187/189	TF5BW	260/264
VK4CY	187/188	VK7TS	253/254
VK6HW	179/182	VK6ANC	247/250
VK7TS	165	VK5UO	243/247
VK5UO	163/164	VK3DQ	241/270
VK5BO	159/184	VK2CWS	241/243
VK3DNC	154/157	VK6APW	239/240
VK4XJ	150/163	VK2ETM	238/240
WA5VGI	146/148	VK4XJ	233/249
VK4UA	143/145	VK4DA	224/226
VK7DQ	137/138	WA5VGI	216/218
VK4AAR	134/136	VK6MK	209/211
VK2TB	123/125	VK2EFT	202/205
VK2BQS*	121/123	VK5GZ	196/198
VK3AGW	119/120	VK3DNC	185/187
VK4CMY	117/118	VK2BQS*	180/183
SP1AFU	112/113	VK6NV	172/173
VK8KV	112/113	VK6APH	171/172
VK5BWW	110/111	VK4CHB	160/162
VK6NV	109/110	VK2NO	158
OK1FED	109	VK8XC	150/152
VK2FYM	106/108	VK6LC	142/144
VK3DG	102	VK2HV	142
VK8XC	101/103	VK4NJQ	133/139
VK3AMK*	100/102	VK4EZ	129/138
Open - Honour Roll		YB8GH	127/129
VK5WO	327/364	VK3VB	126/128
VK3QI	327/342	VK4CMY	120/122
VK3AKK	327/338	VK7HV	114/117
VK7BC	327/336	SP1AFU	114/115
VK6RU	325/380	VK2FYM	113/115
VK6HD	325/351	VK3OZ	104/105
		* = RTTY	ar

Pounding Brass

Stephen P Smith VK2SPS
PO Box 361 Mona Vale NSW 2103

I've been receiving quite a lot of inquiries lately about American made semi-automatic keys other than the more common Vibroplex models which are still being manufactured today.

To help with identification I've included photos of a number of keys manufactured by the prominent companies of that era.

Next month I will be discussing cryptic codes as used in the earlier part of this century.

ar



A Mecograph Model 2, produced by the Mecograph Company of Cleveland, Ohio about 1914.

Was that 'Global Positioning System' or 'Guiding the Police Service'?

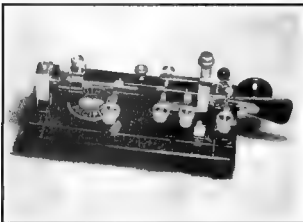
There are many uses for a GPS, but this one reported from the UK, takes the prize, for now anyway.

When a body weighed down by an anchor was caught in the nets of a fishing boat, a police murder investigation was launched. The body was identified as a man whose identity had been stolen, it seems, by a man the police had suspected of allegedly murdering him and then dumping the body.

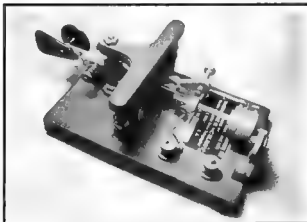
On arrival at the suspect's yacht, the police found a GPS Navigation unit which showed he had been close to the area in which the body had been dumped at about the time it was believed to have occurred.

It appears police had the suspect right where they wanted him!!

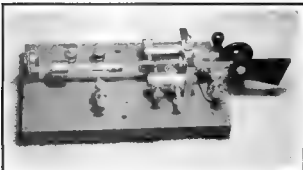
ar



A Southern Pacific Railway copy of the Vibroplex Original.



A 1937 Mac Key, made by Ted R McElroy, World Telegraph Champion.



A Telegraph Apparatus Company Bug, made in Chicago, Illinois in the 1940's.



The only semi-automatic ever made in kit form by the Electric Specialty Company, Cedar Rapids, Iowa.

How's DX?

Stephen Pall VK2PS

PO Box 93, Dural NSW 2158

Recently I had the privilege of attending the Conference of Affiliated Clubs of the NSW Division of the WIA. Among the many discussion items proposed by the clubs there was one which particularly caught my eye.

The Mid-South Coast Club proposed that the WIA take steps to bring to the attention of all operators the lack of common courtesy and consideration of others, which is becoming increasingly evident on the HF bands.

The supporting comment stated that, "HF band conditions have improved to the point where long distance propagation is possible on any band at almost any time. This means that our shortcomings in on-the-air behaviour are likely to be heard frequently in other countries. Australia will be 'on show' to the whole world during the year 2000 Olympic Games."

Unfortunately, human behaviour cannot be modified by laws and regulations. Education and personal examples of good amateur practice might better influence some of our modern day amateurs, who grew up in a society where selfishness, instant performance, instant gratification and instant success are expected and demanded irrespective of the right of others.

The word "tolerance" seems to be increasingly missing from our day to day language and personal behaviour. Bad behaviour, of course, is not only on HF bands. Those who use 2 metre voice repeaters can tell a similar story.

The NSW Division of the WIA passed a ten point "Code of Conduct for Radio Amateurs" at their annual General Meeting held on 20 April 1996. I wonder how many amateurs in NSW or other parts of Australia are familiar with those points?

I further wonder how many amateurs remember the words of the original Amateur's Code, which was written by Paul Segal W9EEA in 1928, seventy years ago? Segal said that a radio amateur is considerate, loyal, progressive, friendly, balanced and patriotic.

He explained that a considerate radio amateur never knowingly operates in such a way as to lessen the pleasure of others.

A radio amateur offers loyalty, encouragement and support to other amateurs, local clubs and the ARRL (this could be read in our case as the WIA), through which amateur radio is represented nationally and internationally.

Being progressive means that a radio amateur, said Segal, keeps abreast of times in science, has a well built and efficient station and the operation of the station is above reproach.

A radio amateur is slow and has patience when so requested, has friendly advice and counsel for the beginner, and is kind in assistance, co-operation and consideration for the interest of others. These are the hallmarks of the amateur spirit.

Amateur radio is a hobby, never interfering with duties owed to family, job, school or community.

Finally, said Segal, the radio amateur's station and the skill of the amateur is always ready for service to country and community.

Willis Island VK0WG

Graham VK5GW, who spent six months on Willis Island in 1996 and 12 months on Macquarie Island in 1997, and is attached to the Australian Bureau of Meteorology, is back on Willis Island from the end of June 1998 for about six months.

He will be active under his old callsign of VK9WG. QSL direct via VK5GW with a reply envelope and "one green stamp" for overseas stations, and a SASE by Australian amateurs. Cards to be sent to: Graham Whiteside, 33 Maud Street, Unley, SA 5061.

Be patient and wait for the reply cards which will arrive in the early part of 1999 after Graham has returned from Willis.

Antarctica - VK0

In mid July last year I met Tom VK0TS, who spent a year on Macquarie Island in 1997. He was on his way to Hobart in Tasmania. Contrary to some other reports, Tom is not yet in the Antarctic. He was accepted as part of the ANARE personnel for the 1998-1999 year on Davis base, Antarctica (approx 80° E, 68° S). Before Tom gets to Antarctica he has to take part in a compulsory training course at ANARE Headquarters in Hobart. Tom will leave Hobart mid-October for Davis and doubts that he will be active before January/February 1999 at the earliest.

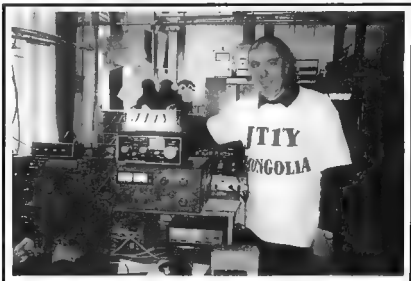
He is not sure whether he will retain his present callsign, or will apply for a different one. He will also have a new QSL manager for the activity from Davis, details of whom will be released later.

Vanuatu - YJ8AA

Frank YJ8AA, who used to be a regular on the "ANZA" net, has not been heard of for a long while.

I sent him a card in May, which reached him a month later in Vanuatu. His reply came not so long ago. Frank is off the air because of damaged equipment. There were two cyclones in Vila, very close to each other earlier in the year.

Frank says he survived the first one without damage, but the second one damaged his Yagi antenna and other equipment. He managed to wind down the mast to a height of about 8.5 metres, but no one was around to help him, and he was unable to lower it further.



Nicola KSNY, the leader of JT1Y, in the JT1KAA Club's "ham shack".



The ten member Italian DXpedition which operated JT1Y, visiting the JT1KAA Club station.

His beam is now in a mess. Rain water got into his power supply which is still not working, and his amplifier suffered damage also. Frank says he will be back on air as soon as he can, but he really needs help with his mast and Yagi.

Frank sends his good wishes to all his friends in VK and ZL, and hopes to be around for many more years, activity permitting.

Yemen - 70

Zoli HASPP, who visited Yemen last year, was again in Sana'a, Yemen in June this year. His trip was made possible with the assistance received from K4TKM and the Northern California DX Foundation.

Zoli met the Deputy Minister of Telecommunications in Yemen, who told Zoli that Yemen wants to establish amateur radio in that country. Zoli made an application to operate and requested the 708DX and 708CW call signs for the activity from Sana'a, and 701A for Aden.

In turn, Zoli offered to build four complete stations in Sana'a, Taiz and Aden.

He also offered to conduct education classes for the Yemenis dealing with ham radio. These classes are planned to take place between 1 September and 1 December. Zoli also made a promise to the Yemenis that he will ask the Secretary of the IARU to help Yemen to join the World Amateur Organization.

Zoli was told by the Deputy Minister that there are a lot of applications from other hams around the world who want to operate from Yemen. The Deputy Minister was sympathetic about Zoli's application and, according to Zoli, he said, "Mr Zoli, I like your application. You will be the first foreign

operator in Yemen, but the very first operator will be a Yemeni. Foreigners only after the Yemeni operators". Zoli further promised that he will contact all the hams of the world who want to help and operate from Yemen, but he now wants your help. Contact him by e-mail at navis@mail.mata.v.hu as soon as possible.

It seems to me it will be a little while yet before we have a genuine approved activity from Yemen.

Thailand H80/VK3DXI

Mirek planned to be active from Phuket Island, IOTA AS-053 from 27 June to 1 July, mainly on CW, from 40 to 15 metres on the usual IOTA frequencies. Cards for this and other operations should be sent to his QSL manager DL4DBR, and NOT through the Australian QSL Bureaux. His manager's address is: Thaddaeus Barczyk, Papelstr 34, D-58099, Hagen, Germany.

Mirek advises that there is a mailing problem in Thailand - letters disappear, often even registered ones. Mirek has been in Thailand now for 21 months and his tour of duty will end in August. He is not sure where he will go from there.

According to Mirek, finally the Thai Telecommunications administration will give the Thai amateurs a new band plan allowing access to WARC and all modes of transmission. It is hoped that activity on 160 and 80 metres will be allowed also. Mirek says there are 100,000 hams in Thailand.

Tristan da Cunha - ZD9IL

Some interesting snippets of news came from Edwin ZS5BBO, the QSL Manager for Ian ZD9IL. Ian is the chief radio operator on the island of Tristan da Cunha. He is very active

on amateur radio on SSB on the 10, 12, 15, 17, and 20 m bands and operates daily from 0900 to 1600 UTC.

Ian uses a Kenwood TS-130S and a dipole antenna running about 100 watts. He is desperately looking for a beam antenna for 10, 15 and 20 m, and also for the 12 and 17 m bands. If you can assist, as an individual or as a radio club, Edwin ZS5BBO wants to hear from you.

As shipping schedules to and from the island are very restricted, the log books for the period from 27 November 1997 will arrive with Edwin in the first week of August. Anyone who worked Ian and wants a QSL card, will now receive a card from Edwin. The address is: Edwin Musto, PO Box 211032, Bluff, 4036, South Africa.

Future DX Activity

* **Cyprus - 5B4.** Steve G3VMW and Bob G3ZEM will be active from 21 July to 5 August as 5B4/G3VMW and 5B4/G3ZEM from Pathos. QSLs via G3ZEM, R Henderson, Whitwell House, Whitwell on the Hill, N Yorks, YO6 7JJ and G3VMW, S Wilson, 3 Craig Gardens, Bramham, Wetherby, West Yorks, LS23 6RP, England.

* **Uganda - 5X.** Don KD4UDU is active from Kampala, Uganda until the middle of August as 5X1DK. QSL to home call.

* **Taiwan - BV.** Jurgen DJ3KR is active from Taiwan until 12 August as BV/DJ3KR. QSL to: J Rottger, Tarfalavagen 1 C, Kiruna, S-98144, Sweden.

* **St Paul Island - CY9.** The St Paul Island DXpedition CY9AA (see *Amateur Radio* June 98 issue) has been cancelled.

* **French Polynesia - FO0.** Albert FO5JR will be active from Rimatara Island in the Austral Group on CW around 14010 and 21010 kHz. QSL via home call, bureau or direct via: Box 10127, 98711 Paea, Tahiti, French Polynesia.

* **Tromelin - FR/T.** Jacques FR5ZU has cancelled his trip to the island until at least the end of the year.

* **Midway Island - KH4.** Ted NH6YK will be active from 1 to 15 August as KH4/NH6YK. QSL via home call.

* **Falkland Islands - VP8.** Carl VP8/G4FVU/mm is working on an oil rig off the Falkland Islands. When he is on land he uses the call sign VP8CZJ. He also talks about a possible trip to the South Sandwich Islands for two weeks in January or February 1999. QSL via G0HXL, E Calthorpe, Rowles College, School Lane, Rothwell, Lincs, LN7 6BB, UK.

* **Brunei - V8.** Gary VK8GW is now active as 1430GTW on the SEANET frequency of 14320 kHz at 1200 UTC, and afterwards on 15 m. QSL via: Gary Woods, PO Box 1956, BSB, Brunei Darussalam 1919, Brunei.

* **Nigeria - 5N0.** Jaromir 5N0/OKIAUT was heard on CW on the 40, 20, 17 and 15 metre bands. QSL via home call to: Jaromir Klimosz, Ploj Harova 7, 1892, CS-16200, Praha 6, Czech Republic.

* **Botswana - A22.** Charlie W0YG will be active from 6 to 26 August as A22/W0YG mostly on CW on 40 to 10 metres, the WARC bands, and possibly 160 metres, with wire antennas and an amplifier QSL via his home call, Charlie Summers, 6746 North Yucca Trail, Parker CO, 80138-6110, USA.

* **Central Africa - TL.** Alex TL5A is now operational on all bands. QSL via PA3DMH, Alex van Hengel, Schoener 85, 2991 JK, Barendrecht, The Netherlands.

* **Miquelon Island - FP.** The Prairie DX Group will be active from Miquelon Island as FP/N9PD between 26 August and 1 September. QSL via N9PD.

* **Caribbean Tour.** Rob PA3ERC and Ronald PA3EWP will be active from Jamaica 6Y from 27 August to 8 September, and from the Cayman Islands ZF from 8 to 20 September. QSL via PA3ERC, Rob Snieder, Van Leeuwenstraat 137, 2273 VS, Voorburg, The Netherlands.

* **Ethiopia - ET3.** A group of UK amateurs will be operational from Addis Ababa as ET3AA between 18 and 27 September from the club station of the Ethiopian Amateur Radio Society. QSL via G3VMW, S Wilson, 3 Craig Gardens, Bramham, Wetherby, West Yorkshire, LS23 6RP, England.

Interesting QSOs and QSL Information

* **ZB2AZ** - Ross - 14005 - CW - 0542 - June. QSL via PO Box 292, Gibraltar, Europe.

* **PT7BZ** - Ely - 14200 - SSB - 2140 - June. QSL via Brazilian QSL Bureau.

* **T97M** - 14016 - CW - 0634 - June. QSL via K2PF, Ralph G Fairello, 23 Old Village Road, Hillsborough, NJ 08876, USA.

* **TU2DP** - AI - 14202 - SSB - 0649 - June. QSL via K4MQL, James N Burdette Jr, 1035 Presidential Drive, Dallas, GA 30087 USA.

* **FO0HAR** - Ed - 14164 - SSB - 0555 - June. QSL via K8VIR, Ed Hartz, PO Box 480, Green Valley, AZ 85622-0480, USA.

* **FS5HI** - Inano - 14195 - SSB - 0536 - June. QSL via WA4JTR, Thomas A Haney, 505 Womack Rd, Covington, GA 30209, USA.

* **9H0A** - Kai - 28006 - CW - 0507 - June. QSL via LA2TO, Kai Martin Mauseh, Ellen Gleditsch v 9, N-0987, Oslo, Norway

* **KH3AE** - John - 14034 - CW - 0734 - June. QSL via KH3AE, John B Bartlett, 51 138 Kamehamea Hwy, Kaawa, HI 96730, USA.

* **J49IL** - Karl - 14025 - CW - 0555 June. QSL via DJ5IL, Hansjuergen Wermund, Uhuweg 16, D-76149, Karlsruhe, Germany

* **CO6XN** - Abel - 14194 - SSB - 0624 - June. QSL via PO Box 1, Venegas, 64180, Cuba.

* **VF3DX** - Vil - 14034 - CW - 0648 - July. QSL via Vilhjalmar Thor Kjartansson, Silungak Visi 10, 15-110, Reykjavik, Iceland.

* **VP2VF** - Dirk - 14226 - SSB - 1145 - June. QSL via Dirk J de Jong, Box 137, Road Town, Tortola, British Virgin Island, Caribbean.

From Here and There

* **AX2ITU.** The NSW Divisional special event station was active for 24 hours on 17 May. Eight operators made 530 contacts with 49 DX entities on the 15, 20, 30, 40, and 80 m bands, and on the 2 m and 70 cm bands. 215 contacts were made using SSB, the rest using CW. In addition, the Divisional Broadcasting station VK2WI, using the AX2ITU call for one hour for call backs, made 87 contacts on the 6 and 2 m and the 70 and 23 cm bands.

* **VK Amateur Licences.** It was interesting to read the statistical data about the Australian radio amateur licences as at April 1998 (page 6 of July *Amateur Radio*). A few weeks ago I read in the "Australian Radio Amateurs Advancement Association (ARAAA) Newsletter" the following statistics as at April 1997. At that time, quoting ACA figures, this was the situation: Unrestricted 9724, Intermediate 1372, Limited 2882, Novice 2059, Novice Limited 260, a total of 16297. In addition there were 461 repeaters and 53 beacons.

The same source quotes the New Zealand figures as follows: General 3803, Limited Novice 73, Limited 2554, and Novice 31, a total of 6061. In addition, there were 204 repeater stations and 32 beacons.

* **VM4AA - Silent Key.** During the past

12 months I mentioned John Keith McCarthy VM4AA several times in this column. "Macka", as he called himself, was a retired RAAF Squadron Leader living in Runaway Bay on the Queensland Gold Coast. He was 87 years old and he was active with his unique callsign on the 20 and 40 m bands working CW. A few weeks ago Ray VK4BAY, President of the Air Forces Amateur Radio Net, advised me that "Macka" became a Silent Key on 8 May.

As if "Macka" had sensed what was coming, he checked in three times into the AFARN net before his death, using SSB which he "hasn't worked for yonks", as he told Ray. The unique "VM" prefix, the only one in Australia, has died with him.

* **Easter Island - CE0.** Ed K8VIR has returned to French Polynesia after spending some time activating Easter Island with the callsign XQ0/K8VIR. QSL to his home call.

* **QSL cards for the FO0MAC and FO0FAP DXpeditions** should be sent to K8OU, via EIDX Network (Trustee K8YSE), 4910 Royalton Rd, North Royalton, OH 44133-4049, USA.

* **Argentina - LU.** International postage rates have been increased in Argentina. To send a letter from Argentina to VK/ZL it will now cost "two green stamps".

* **5X1Z - QSL Information.** Mats SM7PKK has appointed a QSL manager for his present activity as 5X1Z. QSL is now via SM6CAS, Nils Goeran Persson, Box 2050, Hovas, SE436 02, Sweden. Please note also that SM6CAS now handles the cards for all the past operations by Mats: 3D2CT and 3D2CU (Conway Reef), 3D2KK, 3D2XR (Rotuma), 4X/SM7PKK, 5WIHK, A35KK (OC-064), FW/SM7PLL (Wallis OC-054), KH6/SM7PKK, KH8/SM7PKK, SV9/SM7PKK, T33KK (Banaba), TF4/SM7PKK



JOSNY and JT1BH at the console of JT1Y.

(Flatey Isl EU-168), VK2FVD, WH8/SM7PKK, ZK1XI(South Cook OC-013), and ZK2KK.

* **Malpelo - HK0.** Roberto HK0TU has said that the official 1999 Malpelo DX-pedition is now well under way and is planned for September and November of 1999. This expedition is fully backed by LCRA, The Colombian Amateur Radio League.

* **Western Sahara - S0.** Mark ON4WN was active with the call S07WW from 21 to 26 June. He works for the UN and is stationed in Algeria for a few months. During the day he attended to his professional duties and during the night he was active on amateur radio. He concentrated on CW and was heard in Europe, North America and Australia on a variety of bands.

He is a good CW operator with good operating skills. QSL via ONSNT, Christlain Penny, Lindestraat 46, B-9880, Aalter OV, Belgium.

* **Algeria.** Sadek 7X2LS appeared on the ANZA net in July. According to Brian VK5FV, Sadek said that 70% of the mail sent to his call book address goes astray. Please send your QSL cards to S Laskri, 51 Rue Edmond Bonte, 91130, Ris Orangis, France.

* **Brunei** has changed its prefix from V85 to V8. All new licences are either 1 x 2 or 1 x 3 letters with V8 as the prefix.

* **Mongolia - JT.** The Hungarian Pannon DX Club made 23,146 QSOs as JU1HA and JT1X during May. QSL via Szabo Laszlo HA0HW, PO Box 24, Puspokladany H-4151, Hungary.

* **Antarctica.** VK0TA has been heard from Davis Base on SSB at around 2315 UTC on 14122 kHz.

* **World Football Cup.** QSL cards for the stations which were active during the celebrations could be sent via the Bureau. Besides the individual French Stations with the FBC prefix, there were ten special event stations with the call signs TM0CMF to TM9CMF, with individual QSL managers indicated during the QSO.

* **Amsterdam Island.** Eric FT5ZG was active from Amsterdam Island during last December. His cards are now arriving in Australia from his QSL manager F5RQQ, Jean-Marc Vigier, 4 Impasse des Lys, 63800 Courmon d'Auvergne, France.

* **Western Sahara.** There is a newly licensed amateur with the call S01HA. QSL manager is EA2JG.

* **Armenia.** The EK QSL Bureau operates only as an incoming bureau. EK stations must QSL direct in responding to any cards received by them through the EK Bureau.

* **Guam - KH2.** According to Jim KH2D there are only two active operators left on Guam, N2NIL/KH2 and KH2D. On Saipan, WH0AAV is the only one active.

* **Thailand.** Ray G3NOM has moved to Thailand. His new address is: Ray Gerrard, PO Box 1300, Bangkok 10112, Thailand.

* **Guadeloupe.** Baldu DJ6SI is active as FG/DJ6SI. He is usually on CW. QSL via home call.

* **Kosrae Island.** Nishi V63AO has moved from Pohnapei to Kosrae which is within the V63 group. His new address is: Mr Nishi Nishimura, PO Box 607, Kosrae, Micronesia, 96944 USA.

* **Market Reef - OJ0.** Seppo OH1VR and Jorma OH2KI were active from Market Reef in July. QSL via OH1VR, Seppo Sisatto, Lamsirinteenk 23, 33400 Tampere, Finland.

* **South Africa - ZS6.** The special event station ZS80NRM celebrated President Nelson Mandela's 80th birthday QSL via ZS6Y Eienne Swart, PO Box 12, Strubens Valley, 1735 South Africa. No IRCs please.

* **Pakistan - AP.** Amir AP2AGJ has been heard lately on the bands. His QSL address is: Amir Gulistan Janjua, House No 56, Chaklala, Rawalpindi, Pakistan.

* **Greece - SV.** Greek amateurs are now allowed to use the 6 metre band on a secondary basis as the primary use of the band is reserved for the Greek army. Foreigners, irrespective of their licence status, will not be given licences to use the band.

QSLs Received

BV4ME (1 m - op); K7K (4 m - AH0W/7); VK9WG (19 m - VK5GW); 5B4MF (1 m - op); 5B4XF (3 m - op); JT1Y (4 w - I0SNY); VK210M (4 m - VK2BEX); TG9NX (4 w - N4FKZ); V16EWT (3 m - VK6ANC); FW2EH (6 w - DJ2EH).

Thank You

Many thanks to my fellow amateurs whose assistance in compiling this column is very much appreciated. Special thanks to VK2EFY, VK2EM, VK2KFU, VK2TJF, VK2XH, VK4BAY, VK4LV, VK4VIS, VK5FV, VK5GW, VK5WO, I0SNY, Y18AA, ZS5BBO, INDEXA News, Ohio/ Penn DX Bulletin, QRZ DX, The 425 DX News, The DX Newsletter and the DX News Magazine. ar

"Winnie the War Winner" Follow-up

For those who read and enjoyed the historical article "Winnie the War Winner" which appeared on pages 20 and 21 of last month's *Amateur Radio* magazine, Ken Bridger VK3JII has advised that a War Museum photo of this "weird but wonderful set" was published on page 20 of the March 1980 issue and again on page 27 of the August 1984 issue of *Amateur Radio* magazine. ar

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AMSAT Australia

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Success and Disappointment

First bit of good news. Our heroes have been at it again. Two new amateur radio digital store and forward satellites are now in orbit.

TMSAT-1 was successfully launched from Baikonur Cosmodrome. It was launched at 0630 UTC on 10 July 1998. After being placed into an 821 km sun-synchronous orbit, TMSAT-1 was switched on and began sending data on its downlink frequency of 436.925 MHz with a power output of approximately two watts.

Reports indicated that it was transmitting a few kHz higher than its nominal frequency. This was expected to correct itself as the satellite warmed up slightly when all equipment was turned on permanently. Chris G7UPN/ZL2TPO will load the flight software on the on-board computer and then start stabilising the attitude.

For the few days I was able to listen prior to the deadline for this copy, TMSAT-1 was obviously tumbling in orbit as the signals were fading from S9++ down into the noise level. A brief overview of the TMSAT satellite and commissioning plan is available at the Internet Web site http://www.ee.surrey.ac.uk/EE/CSER/UOSAT/amateur/tmsat/tmsat_commissioning_plan.html

Second bit of good news. Also launched aboard the same RESURS-O1 spacecraft was the TechSat-1B satellite from Israel, another digital store-and-forward satellite using 9600 baud frequency shift keying (FSK), much like UO-22, KO-23 or KO-25. TechSat-1B will also feature VHF/L-band uplinks, with downlinks in the 70 cm band.

At the time of writing the satellite is transmitting a 9600 baud burst three seconds in length every 30 seconds. 4X4AS is estimating that it will be several weeks before the initial in-orbit testing is completed. In the meantime, TechSat will continue its present burst-mode transmission format. A TechSat Web site is available at <http://www.technion.ac.il/~asronen/techsat/>

Congratulations are very much in order for the TMSAT-1 and TechSat-1B launch teams for these additions to our ever-expanding flight of digital birds. By the time you read this column both satellites should have been fully commissioned and will be providing the amateur satellite fraternity with much increased digital message capacity.

The most exciting thing about TMSAT-1 is its 34.4 kilobaud downlink. This is still very much an experimenter's mode as our "normal" amateur receivers will not handle the greatly increased bandwidth required for the higher baud rate. A number of designs are in the pipeline for "add-ons" and free standing units to cope with this mode. When fully exploited, this mode will rival the present state of the internet art for download capacity.

Picture files of several megabytes come to mind as a typical application. When coupled to its CCD camera, the high speed downlink will allow TMSAT-1 to produce high resolution cloud and earth terrain pictures of a quality approaching that of the APT pictures available in the public domain from NOAA weather satellites. We can look forward to TMSAT-1 being the first of a new generation of very capable amateur radio satellites.

TechSat-1B is also pushing things further with its "L" band uplinks. Thus far we have only seen operational "L" band on the high orbit satellites where they were only turned on around apogee. It will be time to dust off the old 1296 MHz gear and grapple with the complexities of antenna and Doppler tracking a low-earth-orbit bird in the microwave region. Once again this will test the capabilities of our gear to the limit.

Disappointment. The most disappointing news to come in for some time arrived last month. It concerned the launch of the long awaited Phase 3D spacecraft. It appears we have been out-bid by commercial interests for a place on Ariane-5. The launch of Phase 3D has been postponed indefinitely!

One could feel Karl's sadness in making the announcement. The decision was made by Arianespace, the marketing arm of the European Space Agency, ESA. A figure of around \$35,000,000 was sought from a launch customer. This is only half that normally sought due to the rather shaky start of the A-5 series and yet clearly beyond the resources of the amateur radio community.

No customer has been found so far and the rocket may even go into space with a dummy payload in order to prove the A-503 system, the money being put up by Arianespace in order to be better able to sell space on future launches.

The problem of an alternative launch vehicle is compounded by the fact that Phase 3D has been designed and built to fly on Ariane-5. It could be modified to suit an

AMSAT National Co-ordinator

Graham Ratcliff VK3AGR
E-mail: vk3agr@amsat.org
AMSAT Australia Net

The AMSAT Australia net is held on 80 and 40 metres LSB each Sunday evening. During daylight saving time in South Australia the net is on 7068 kHz +/- QRM with an official start time of 1000 UTC (with early check-ins at 0945 UTC). During the rest of the year, the net is on 3685 kHz +/- QRM with an official start time of 0900 UTC (with early check-ins at 0845 UTC).

AMSAT Australia Newsletter and Software Service

The newsletter is published monthly by Graham VK3AGR. Subscription is \$30 for Australia, \$35 for New Zealand, and \$40 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:

AMSAT Australia
GPO Box 2141
Adelaide SA 5001

Keplerian Elements

Current keps are available from the Internet by accessing the AMSAT FTP site, <ftp://amsat.org> and following the sub-directories to "KEPS".

Ariane-4 rocket but, being quite bulky and weighing in at 600 kilograms, it requires a substantial launcher.

The required orbit is another limiting factor. A geo-stationary transfer orbit (GTO) is best for our requirements and that limits the launch vehicles to those carrying-satellites destined to go into geo-stationary orbit.

The Space Shuttle, for example, would not be suitable. Nor would the numerous launchers carrying low-earth-orbit satellites into orbit. AMSAT will be looking at other launchers which go to GTO to try to get Phase 3D off the ground as soon as possible.

Listening for the Lunar Prospector

Looking for a real challenge? Here's one that's tough but achievable. See if you can detect the signals from the Lunar Prospector currently orbiting the Moon. If you can connect to the Internet World Wide Web, have a look at <http://www.geocities.com/CapeCanaveral/Hangar/8389/lunar.html>.

On that site, Joe Steinmetz KC6SZY describes and shows images of his receiving set-up that has successfully detected the radio signals from the Lunar Prospector. Joe used gear which is not beyond the scope of the adventurous amateur. A small steerable dish,

50 cm or so in diameter will do the trick. A simple but efficient feed would be the G3RUH short helix system which will be familiar to many amateurs. I use such a feed on my 1.6 metre dish.

The signals on 2273 MHz are received using a modified TV down converter. The modifications are simple and are covered comprehensively on the Web site.

Now we come to the hard part. No matter how good a pre-amp or down converter you may use, the 3600 baud digital signals are so weak as to be virtually inaudible. Even if they were much stronger they would only appear as noise to the ear. A more subtle method is needed to detect their presence.

Joe uses software called FFTDSP. This is a Digital Signal Processing program (that's the DSP part of the title). It is used to detect and display the signal. The program is written and supported by Mike Cook AF9Y. Such a system can detect very weak signals from a radio receiver using the real-time Fast Fourier Transforms (that's the FFT part of the title, a form of mathematical trickery).

The audio signal is fed into the PC via a sound card and the resulting output can be either played 'real time' through the software or saved as a .WAV file for later analysis.

How does it work? Amplitude levels for each FFT frequency are converted to colour and displayed on the PC as a continuous spectrograph. The resulting screen simultaneously shows the output of 640, 2 Hz (yes, that's two Hertz) wide "filters" between approximately 300 and 1500 Hertz. Try doing that with lumped constants.

Each horizontal line represents the output of all 640 filters during a 0.5 second period. Over time, as each line is added to the screen, the eye can begin to see weak signals emerge from the darker background. This method is similar to that used by Darrel AA7FV in 1997 to detect the 435 MHz test signal from the Mars Global Surveyor (MGS) when it was some six million km from earth.

The site contains some FFTDSP plots of signals from the MGS heard using a pair of 10 turn helix antennas, a low noise pre-amp and an amateur radio transceiver. Listening for the signals from the Lunar Prospector is not quite so demanding as the MGS endeavour, but it would make a very worthy project for the determined amateur. The Web site contains many links to other sites of interest including a download site for a demo version of the FFTDSP software. It should be of great interest to those who enjoy the challenge of very weak signal reception. The method could find application in FME, aircraft enhancement, VHF/UHF DXing, beacon monitoring and other weak signal modes. You may even detect signals from defunct satellites - anyone remember Arsene? ar

Spotlight on SWLing

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Tel: 03 6344 2324

Pocket: VK7RH/VK7RBS, JT, TL, TAS, AIA, OC

E-mail: robroy@tesse.net.au

World Radio TV Handbook

A new editor of the *World Radio TV Handbook* has been appointed. He is David Bobbett, an English journalist who has had experience with various technical publications such as *Ham Radio Today* and *RadCom*.

The editorial offices have also been moved from Amsterdam to Milton Keynes in the UK. Andy Sennit, the former editor, is now a communications consultant and frequently contributes to *Radio Netherlands "Media Network"*. The new address is WRTH, PO Box 7373, Milton Keynes MK12 5ZL, United Kingdom. E-mail to editor@wrth.demon.co.uk.

The falling currency rates have made this publication very expensive and many DX clubs in Australia have been debating whether it is now worth obtaining. Circulation has been dropping steadily and other publications such as *Passport to World Band Radio* and the *Klingenfuss Shortwave Guide*, are more geared to the DXer and the short-wave listener.

The costs of importing hundreds of copies for resale with a very weak Australian dollar means that it has become somewhat questionable. Often, by the time it has reached Australia, particularly via surface mail, the information is outdated or obsolete.

Electronic distribution via the Internet has made it possible to be updated almost instantly with changes. However, there are still quite a number who don't have access to the Net. I have not obtained a *World Radio TV Handbook* for a number of years, preferring the *Passport to World Band Radio*.

Radio for Peace International

The Costa Rican station 'Radio for Peace International' has been recently logged on 6980 kHz USB. The times are between 0400 and 1200 UTC.

However, there are a number of Australian utility stations on that channel and Radio for

Peace International was causing interference between 0400 and 0700 UTC. A complaint was lodged and, as I am compiling this, Radio for Peace International is looking for another channel. Most of the complaints come from south-eastern Australia.

Glen Hauser said on the "World of Radio" that the Tasmanian Government lodged a complaint. My sources say it came from the ACA. The ACA has for some time noted that many of the Australian domestic HF circuits have been receiving interference from some international broadcasting stations operating on frequencies normally outside the allocations for Broadcasting. Many of these are American religious stations.

Radio New Zealand International

Radio New Zealand International has had their budget slashed by \$NZ130,000 which means that some programming has been axed. All dedication programming has been axed, including the Brass Band program with Rudi Hill which was one of my favourites.

News bulletins in Pacific island languages will be heard in the morning but the bulk of the programming will consist of a relay of the National Program. Also, they will close down two hours earlier at 1010 UTC.

Radio Free Asia

Radio Free Asia (RFA) apparently has purchased KHBI on Saipan from the Christian Science Publishing Company. RFA has been, up until now, leasing airtime from various sites and this will be the first dedicated RFA site in operation. The Society will be continuing to utilise KHBI for some programming as well as WSHB in South Carolina.

Canada

There are a couple of small powered Canadian stations which are very rarely heard here in Australia. The channel is 6160 kHz and there are two stations, at opposite ends of the Dominion in St Johns, Newfoundland and Vancouver, BC. There is a rare opportunity between 0800 and 0900 UTC before the Antigua relay of Deutsche Welle appears at 0900 UTC and dominates the frequency.

Higher Frequencies

The higher frequencies are coming into vogue again as the sunspot count increases. Radio Australia is back on 21740 kHz between 0100 and 0400 UTC. Transmissions are from Shepparton in Victoria.

Various Middle Eastern broadcasters are on 21630, 21700 and 21735 kHz around 0500 UTC, usually in Arabic. Israeli Radio is quite strong on 17635 kHz around 0400 UTC. Turkey is on both 17705 and 21715 kHz. ar

Silent Keys

Due to space demands, obituaries should be no longer than 200 words

The WIA regrets to announce the recent passing of:-

HE	WHYTE	VK2AHA
KJ	ELKINGTON	VK2CBI
NS	PIERMONT	VK2CNS
GH (Gordon)	SANDERS	VK2DGS
P (Peter)	RYSDYK	VK2FFA
G (George)	FOWLER	VK3DOK
SA	KEIGHLEY	VK3DSP
J (John)	GORDON	VK3EUX
AR (Alexander)	ANDERSON	VK5GM
CC (Cyril)	EAKINS	VK6CN
TH (Thomas)	PRICE	VK6TP

Kenneth John Elkington VK2CBI - 1931 to 1998

Born to Eva (Connors) and Bill Elkington in Penrith on 15 August 1931, Ken was elder brother to Colin, Bruce and Neil. He attended St Joseph Convent School, Penrith, and later St Patricks at Strathfield. A good student, he was respected and well-liked by peers and teachers.

Ken had an early passion for carpentry, and excelled in woodwork, along with football, tennis, and rowing. He was a state champion between 1949 and 1951.

He loved playing golf, showing an occasional resemblance to a slightly more famous cousin, once removed. He enjoyed the friendship and company of the Springwood Golf Club extended family.

Ken began his building career with Rex Hardy in Penrith, before joining with Ernie Hockings for several years of building around NSW, including the Nambucca cinema and the Bega cheese factory.

He met and married Elsa (Brown) in 1959, and the Blue Mountains became home.

In partnership with Fred Parish they became known as the "church builders", and completed many magnificent homes, schools, post offices, shops, a bus depot, fire station, and numerous additions in the area.

Ken and Elsa became involved with the Blue Mountains Grammar School Auxiliary, attended by their four children, Mark, Paul, Julie and Angela.

He was a member and President of the Blue Mountains Master Builders Association, and was recognised through the award of a gold medal during that period.

He spent many years enjoying his holiday cottage at Forster. A keen fisherman, he would usually return home from either the lake or ocean with a respectable catch of bream, flathead, whiting, and yarns.

A quiet, gentle, family man, he will be greatly missed by his family and friends. "Well done, good and faithful servant."

Mrs Elsa Elkington

Neil Piermont VK2CNS

Neil ("Froggy") Piermont VK2CNS (previously VK2NQ) passed away on 27 May 1998, six weeks short of his 89th birthday. His health had been increasingly in sharp decline for about eight months, the last eight weeks in hospital and finally just two days in a nursing home.

In the Navy, Neil was a "Tingira" boy at the start of his service, 30 December 1924 to 21 July 1931. During that period he became a Telegraphist Air Gunner after training at Point Cook. With WW2 he rejoined on 27 November 1939 and was discharged on 12 December 1945, including two years at Darwin (Coonawarra W/T) and afterwards as Radar Instructor at HMAS Watson Head.

In civilian life he worked as station engineer for each of 2UE, 4LG, and 4AY before taking up employment at the Naval Dockyard Radio Centre at Leichhardt (moving later to Holt Street and to Garden Island), from which occupation he retired, aged 64, as a Senior Technical Officer.

A RNARS member and life member of CCARC, Neil lived in retirement on the NSW Central Coast at Pearl Beach, next at Entalong, thence Buff Point. He enjoyed fishing, gardening, model boat building, amateur radio, ancient history and the Bible, plus many other interests, and will be missed by all his peers.

H M (Max) Piermont VK2APD

Gordon Sanders VK2DGS

Gordon Howard Sanders VK2DGS, is one of our genuine "Silent Keys", being a Morse and High Frequency addict for many years!

Gordon was born in Liverpool, New South Wales on 19 June 1921 and, whilst most of his working life was spent as an engineer with the Department of Civil Aviation, he spent some years with the Royal Australian Navy Signals charging to, and communicating from, many odd places of the globe.

First licensed as VK2NTS in 1977, other call-signs held were G4LCW, C31WW, RNARS number 1428, Royal Signals number 1483, and finally VK2DGS.

His other achievements included building his own house at West Lindfield and getting it passed by Council. Nothing, I guess, if one is in that game, but Gordon was not! Also, after retirement from DCA, he taught Maths and Science at High Schools. This came to a halt in 1989 with a total of six heart by-passes after which he continued to help others for some years in the Hydrotherapy Pool at Royal North Shore Hospital.

Gordon passed away on Monday, 15 June 1998, after some years of failing health, years which involved three visits a week to the Royal North Shore Hospital for dialysis. He is survived by his wife, Marge, and two daughters, Helen and Robyn.

Bob Yorston VK2CAN

V3RMIT Special Event Station

The Royal Melbourne Institute of Technology is once again opening its doors to the general public for the annual event of Open Day.

On 9 August 1998, students studying with the department of Communication and Electronic Engineering at RMIT will operate a special event station to signify the importance of communications and promote the hobby of amateur radio.

OPEN DAY 98 is being organised by the final year students of RMIT and should bring over 4000 people into their departments. You are invited to participate by listening and calling for V3RMIT on 14.200 MHz +/-20 kHz, 21.200 MHz +/-20 kHz, and 28.425 MHz +/-20 kHz.

Listen between 23.30 and 06.30 UTC, 8 through 9 August, or 9.30 - 4.30 EST on 9 August for those in VK.

The Special Event Station Manager is Agisilaos Politis VK3MLA, and the Head of Department is Prof Allan Bradley VK3LW.

For further information contact Chris Arthur VK3JEG, Chief Technical Officer Comms Group, Comm and Elec Eng, RMIT, on 03 9925 2460, fax 03 9662 1060, or rmmca@minyos.its.rmit.edu.au.

WIA Call Book 99
Coming soon!

Intruder Watch

Gordon Loveday VK4KAL

Federal Intruder Watch Co-ordinator
Freeport No 4, Rubyvale QLD 4702
Tel. 07 9666 6166
Pocket: VK4KAL@VKAUN-1

The following small item originated from Tom Walker VK4BTW, the VK4 Intruder Watch Co-ordinator. I thought it worth including.

"It has reputedly been said by some engineering body or other: 'The difficult we achieve immediately, the impossible may take a little longer'."

"While Intruder Watching could not be considered difficult by the average radio amateur, the main difficulty seems to be to convince enough people that the apparent

impossibility of removing some intruders can be overcome if we worry at them long enough. Which is why 'it takes a little longer' and it is this time factor that may discourage those who have consistently supplied reports of an intruder but have seen no apparent result.

"But if you check the Intruder Watch column in Amateur Radio of last June, you will find some encouragement in the first paragraph. This didn't just happen. Someone, many someones, must have been reporting these intruders.

"To improve the effectiveness of reporting intruders, our Federal Co-ordinator Gordon VK4KAL is instigating the system of Primary and Secondary observations. In this system we concentrate on a few Primary intruders with greater intensity in logging times, duration and direction of their transmissions, noting modes and possible identification.

"Other Secondary intruders are noted with a view to moving them to a Primary classification if they prove to be persistent. Now all we need are more willing observers, even just a few. Believe me you will be most welcome and I'll be more than happy to supply all the details."

Thanks, Tom. Incidentally, the last couple of lines apply to me also!

Education Notes

Brenda M Edmonds VK3KT

Federal Education Co-ordinator
PO Box 445, Blackburn VIC 3130

I have written a number of times about ways to introduce amateur radio into the schools, and have mentioned the idea of ARDF being a possible route. Recently I have discussed this possibility with a number of active ARDFers, and am almost ready to circulate an information package to some schools on a trial basis.

Several clubs and groups have developed an interest in ARDF, to the extent that they are building the necessary equipment and running contests on a regular basis. Some have indicated that they would be prepared to lead a set of equipment to a school as required, but we come to a problem when seeking a licensed operator to be responsible for the transmissions.

I would dearly like to be able to go into a school and sell this type of activity by saying "In this area there are X operators who are prepared to devote a few hours per week to help you get started". Obviously a fair amount of co-ordination will be required, and also a lot of volunteer effort. I will be happy to try to do the co-ordination if there are volunteers to co-ordinate.

Some of the outer-Melbourne clubs have agreed to accept requests for assistance from schools. Of course, the main problem is that schools need help during normal working hours, and few amateurs have free time during those hours.

If there are retirees or part time workers who are available for a half day a week, I would be delighted to hear from you.

On another topic, I have recently renewed contact with Pakistan through a local amateur and the Principal of one of the schools. Since we last met, the school has established a station and has included amateur radio in the curriculum.

I am assured that it is well received and the students are working towards licences. Unfortunately, I neglected to get the call sign of the school station, so will have to give it to you in a future column.

A summary of intruders logged during June 1998

FREQ	DATE	UTC	EMM	DETAILS
3.540	220698	1210	A3E	UiBC Indonesia. QTH Sumba Is
3.559	2106	1230	A3E	UiBC, suspect R of Korea, Eng
3.560	1806	1102	A3E	Radio Korea, Pyongyang, Poss ID
7.0392	2406	1227	A1A	BCN "F" Ch Mark, Vladivostok, CIS
7.0395	1806	1040	A1A	SLB "F & S" CIS Navigational
7.100	1906	0600	N0N	UiCAR, more listening on this
10.1315	1906	0500	N0N	UiCAR, sum F1B, nil Sh/Bd rate
14.1265	3006	dly	F7B	UIMUX, 230h/144bds 3ch rev/pt
14.2115	3006	0637	F1B	UiVFT, 850h/100bds, M&S tones
14.250	2306	2000	A3E	Voice of Russia, H2/7.125
14.330	1906	0508	A3E	Radio Australia, H 2 of 7.165
21.159	2006	0525	A1A	P7A Calls P8M, sh to 21.163

Relaxing Morse Code Requirements - More From the RSGB

In the last issue of *Amateur Radio*, you will have seen that the Radio Society of Great Britain was championing a cause for a five words per minute entry level to the HF bands.

According to the latest from the RSGB, a statement has been made saying "Morse has many advantages, including spectrum utilisation, relative simplicity of equipment and cost. The society (RSGB) wishes to see Morse (and Morse segments of the HF bands) preserved as core elements of

amateur radio globally. However, Morse is but one mode among many in current use, and it should take its place alongside the others as an equal."

This statement is basically a response by RSGB President Ian Lyle GIBAYZ, who is a proponent of the mode of CW. The comment was added to a statement from the RSGB several weeks ago on a reduction of entry level Morse code to HF frequencies. Albeit, that the reduced code level would be restricted to amateurs in the UK.

VHF/UHF

An Expanding World

Eric Jamieson VKSLP

PO Box 168, Menangle SA 5264

Fax 08 8578 1777

Packet: VKSLP@VKS.WI.AOL.SA.AUS.OZ

E-mail: vkslp@ozemail.com.au

All times are UTC

Andy Thomas VK5MIR

Peter Ellis VK1KEP reports the following: "I created something of a media story here in Canberra after I talked to Andy VK5MIR on Saturday morning 5/6 at about 5.40 am local (1938-1947 UTC).

"Andy said I was the first VK1 he'd talked to. I decided to see whether amateur radio could make a story on a slow-news long-weekend and made up a news release and sent it to several radio, TV, and print outlets. Nothing happened on Sunday, except for putting the tape of the conversation on the local Amateur Radio Club weekly broadcast.

"Then in quick succession, on the public holiday, Monday 6/6: I was interviewed by the local station of the National Broadcast Network, station 2CN 666 AM, ABC - Australian Broadcasting Corporation, for five minutes just before their 9 am news, including a play over the phone of some of my taped conversation with Andy.

"I was contacted by the Canberra Times for an article and photo. The article was on page 1, and ABOVE the fold!

"As a result of that, a local commercial radio station MIX 106.3 FM, did an interview for about three minutes leading off after the 7 am news. I managed to get a mention in the AMSAT web site, so it might get a few hits as a result.

"Late news: I've been called for a TV interview with a local commercial station for the evening news!

"So, the lesson is to have a quirky news story on a slow news day and put out a release. Amateur radio got some good publicity, for which I am glad. That was the point.

"And ... Thanks Andy, for a great conversation. Goodonya, mate. (Decade of Aussie-speak: Good on you mate. Thanks, friend.)"

In response to the above, **Chris VK6BIK** e-mailed: "Very well done indeed Peter! I just heard (at about 6.35 am local) your story and recording on the ABC radio morning news

program. They gave your story a real fair go with what seemed like 8 - 10 minutes of prime air time after the news, and the announcer's genuine interest was obvious. Well done also on the plug for amateur satellites, and amateur clubs in general. I liked your description of the term "amateur" only referring to the amount of fun we have!

"I had no idea the ACT (almost) missed out on all the fun - we did pretty well in VK6, since the passes mainly came up over the SW first - for once on VHF, an advantage to be living in the Far West. Good work and thanks for the superb positive exposure."

Yes, its good to see amateur radio being recognised as such in media outlets. So often we are referred to as CBers because those concerned never bother to discover the difference. Thanks, Peter.

Six Metres

Steve VK3OT reports six metres has been very quiet: "On 2/6 I had the JA2LGY beacon for several hours but despite many calls was unable to raise any contacts. I also had VK8VF/b from Darwin at the same time. JAs have been very elusive.

"Apart from that, and the ZL3SDX beacon a few weeks later, I have had no E layer of any significance.

"By comparison, had I been in KL7I would have made many 3500 mile QSOs, according to Steve KL7FZ, who has been working down into the US states.

"On 4/7 I spoke with Phil YB9/YB0ARA and he is up and running on six with high power and should be a contender into VK in December."

Mike ZL3TIC reports a short six metre opening on 11/6: 0430: 45.240, 250, 260, 55.240, 250, 260 5/9+, also 55.250 American Samoa 5/9+ NTSC; 0523: ZL2AGI 5/5 w/ QSB; 0530: ZL2TPY 5/9; 0535: ZL1WTT 5/9 running 1/4 wave vertical and 551; 0540: 49.750 5/8; 0540: 46.170, 240 5/250 5/9; 0540: VK7RAE/b 5/9. No VKs worked.

UK and Europe

Ted Collins G4UPS, in his report for May, says: "The first really widespread and intense Es opening took place on 29/5 in the morning to 4X1HF, and later I worked 23 different countries including SV9, ZB, 5B4, RA6 and EH9.

"Since 1/1/98 I have worked 39 different countries on six metres, which is below the number for the same time last year.

"Although I have worked 39 different countries, I have in fact heard 48 countries, including CT1, V51, TT8, OY9, GU, GJ, UY and Z32."

In response to my suggestion that it appeared the Northern Hemisphere was going well with Es contacts, **Geoff GJ4ICD** said

they were having fun. A total of 71 countries so far in 1998 including 3C5I.

"4/6: 0830: Band open again to Middle East: ODSRAK/5B4 EU1AA into G/GJ. 1130: KP4EIT and WP4O worked CT1DNF. KP4EIT also worked OZ station and another CT station ... Ed W4PO. 1242: VE1PZ worked CT1CAD. 1400: KP4EIT into G4UPS/G3KOX/GJ/GU. 1800: Short skip GJ to EI 600 km. 2000: Fs in F2 plus Es brought PYSCC into I/GJ/SM/OJKDL/F/ONI/PA.

"GJ7SLU and I heard him S6 working F6HRP/IN88. Peter PYSCC worked 50 stations in Europe. Best DX today goes to Max DL4MDQ to PYSCC at 10,500 km via Es on top end of F2."

Geoff GJ4ICD also reports in Six News that: "7/6 was probably one of the best Es days ever on six in Europe; conditions were fantastic for the contest during the weekend (some stations had over 750 QSOs!). Alan 3C5I reports adding six new countries as far as Moldova. Early today saw an opening from G/GJ to TR8CA/TR8XX, with TR8CA S9+ on SSB into GJ4ICD at 0756: 9G/TR8 on SSB was then into G3WOS/MD8V, 3C5I also into ON/OZ shortly after.

"So much DX was heard today - here are the highlights. Reported in to G/GJ were: EK6AD to G3IBI (hrd), 0800: TR8XX to G0HJC/I083 (wld with 100 W and a total Es path), ZL1KWT/KN32, 5B4, LZs galore!, TR8s, 9G1BJ, YL, EH9, PM; OZ1DJJ to 3C5I, ER3R/KN47, lots of ERs, loads of YOs, ODSRAK/S9+ into GJ/GI/IOV etc. 1515: 3C video (48.250.4 zero beat USB) into GJ4ICD (UK alerted); 1644: 3C5I/JJ43 559 into GJ4ICD and country #163; 1800 3C video gone, but EH91B and 9G into GJ/GJ; 5B4CY (50.498 MHz) heard most of day in GJ/GJ."

New Beacon Band

A new Slovenian Beacon Band on 40.660 to 40.700 MHz came on air as of 13 June. The beacons must use narrow-band FSK, with a power limit of 10 dB ERP. This, by the way, is part of an IARU Region 1 initiative to obtain spectrum at 40 MHz for DX beacons as an aid to propagation investigation. This information was supplied by David G4ASR via Six News on The Internet.

Cycle Update from ARLP/ARRL

Dr Dick Altkrock of the USAF released a statement in conjunction with the National Solar Observatory about the peak of this solar cycle. He is looking at long-term variation of solar emission features that move toward the solar poles prior to solar maximum. Since this emission feature already appeared over a year ago at 55 degrees north latitude, and is continuing to move toward the poles, the solar

maximum earlier believed to be stated for 2000 is now predicted for next year.

[Reprinted from the ARLP/ARRL Propagation Bulletin and forwarded by Scott VK4JSR.]

Letters

A letter came from Ray VK4BLK (ex VK3LK) who now lives at Yeppoon in North Queensland. I overlooked the letter last month but the news is still relevant.

Ray sent a 50 MHz band report for April 1998 as follows: 11/4: 0951-1044 JAs and JD1 Minami Torishima. 12/4: 0000-0256 35 MHz pagers from USA; KH6HME/b and KH6HI/b. 13/4: 0311-0412 KH6VP, KH7R, KH6AFS, WH6BY, KH6YK, KH6RM, 0655-1026 JAs and Okinawa. 14/4: 0324 JA8; 0953-0957 JAs. 15/4: 0351-0407 and 1006-1025 JAs. 18/4: 0930 JAs. 19/4: 0730 JA2IGY/b. 20/4: 0652-0658 JAs; 0726 N9KX/KH4 Midway Is; 0737-1130 JAs. 24/4: 2328-2352 F05DR/b 559.

Ray says he has now settled in at Yeppoon and hopes to send regular 50 MHz reports. Thanks Ray.

Wally VK4DO from Proserpine also sent a letter with an equinox report, on 6/5, which I missed (I must be getting old!) and he asks for a correction to page 42 May *Amateur Radio* - KH7R was on Hawaii not Kure Island - KH7 stations are now appearing in Hawaii.

Wally reports: "Two of the strong TV stations on 49.750 MHz are from Vladivostok, USSR and Harbin in China. They both have spurious signals on 50.110 MHz and now I am able to tell which one is there if only one carrier is on 49.750. On two occasions this year I have had a noise free picture from each station for a period of one or two minutes, always around 0500. In both cases I was able to read clearly the Cyrillic script or the Chinese characters.

"Japanese stations are by far the most on the air, but HL1LTC and KF4GMH/HL were there on many occasions. Others worked were FK1TK, P29KFS, V73AT, J76CCU Okinawa, KH7R and YJ8UU. Heard a VR2 under a pile of JAs on 50.110 and, on 29/3 at 0530, NH2C on CW."

"The first opening here was on 14/2 at 0533 to JA1VOK. Since then the band has been open every day. It was only type 1 TEP at first, but this changed to types 1 and 2 on 19/3. Since then there has been more type 2 TEP. The peak ranges around 0500 but can start from 0130 and last until 1200.

"Ten metres over the equinox gave more openings into the Caribbean area as well as Florida. Some confusion erupted after having a contact on an FM repeater in Florida. After the contact I left two amateurs arguing as to whether I came direct or through The Internet!"

The VK6 Report

Wally VK6KZ reports a generally quiet month, the usual for mid-winter: "Al Edgar VK6ZAY has moved QTH to a much better take-off for microwaves. He has worked a number of the Perth stations on 2.4 GHz, also Terry Grummer VK6TRG and Wally Howse VK6KZ on 3.5 and 5.7 GHz, plus VK6KZ on 10 GHz. The paths are all short ones of less than 10 km.

"A number of VHFers have been overseas - Alan Woods VK6ZWZ, Jack Borthen VK6KDX and Terry Grummer VK6TRG went to Europe and Phil Casper VK6ZKO went to the USA. Alan gave an interesting insight into the Rutherford-Appleton Laboratories Microwave Round Table in the UK. One of the talks about research going on at those labs referred to the use of 20-60 GHz as IF frequencies! Phil is to talk to the WA VHF Group about the Dayton Hamfest and his visit to see the Phase IIID team.

"The 144.120 MHz skeds between Perth/Albany and Esperance continue each weekday morning at 2315-2345 with signals always being detectable. Wally Green VK6WG has two stacked long Yagis which have improved his signal dramatically. He has now received his 600 mm dish and is using it for his 5.7 GHz station.

"The 50 MHz band has been tantalising with some TV carriers both from the north and the east being heard from time to time but no amateur signals.

"The WA VHF Group scramble on 21 June provided some intense activity on bands between 50 and 1296 MHz for a 30 minute period. Alan Woods VK6ZWZ was the winner. A Field Day is planned for September and will focus on the use of simplex FM for long distance contacts, and is intended to encourage greater interest in non-repeater contacts and perhaps lead to more SSB interest."

EME

A further communiqué from Allan VK4KAZ advises that he has not had a great deal of joy on the EME front lately with only another two to add to the list. On 17/5 he worked KSJL (O/M) #6 and on 22/5, W7CNK (M/M) for #7 off the moon. There have been half-a-dozen other skeds but these have been unsuccessful due to a variety of factors, bad weather, blown pre-amps (their end), poor conditions and "no shows".

Allan says: "My Yagis are K1FO 22 elements, soon to become 24 elements. The 24 has better rear lobe suppression than the 22, I'm hoping for a better G/T ratio. Incidentally, the Yagis are homebrew but not by myself. A couple of years back I purchased Clive VK2DND's EME system consisting of Yagis and K2RIW amplifier.

"The pre-amp is homebrew also. A single stage MGF1302 GaAs FET. This is the area in most need of upgrading. The station mentioned above, W7CNK, is a four Yagi station, 4 x F033. Now, if he copied me as well as I copied him and he's running 10 dB more power ... need I say more?

"I've started building a two stage pre-amp with a HEMT front-end followed by a MGF1302 post-amp. Hopefully this will make a big improvement.

"Speaking of which, Trevor VK4AFL, about 20 km from me, had his first EME QSO on 3/6 with Frank NC11. Trevor has a slightly larger system than mine, a 4 x DL6WU 28 element Yagis and 100 watts."

Going Back in Time

Alan VK3AL from South Melbourne wrote me an interesting letter and sent copies of an article he published in the August and September 1959 issues of *Amateur Radio* with the title *Tropospheric Propagation at VHF*.

This was prompted by the interesting article published by John Martin VK3KWA in *Amateur Radio* for January 1998, concerning Ross Hull and his important discovery in 1935 that the bending of VHF signals was related to the lapse rate of temperature and moisture content.

Alan's article is well researched and written, and relates to work he did about 40 years ago in correlating temperature inversion and moisture gradient (as given by radiosonde readings obtained from the Meteorological Bureau) with enhanced propagation in south east Australia. He says: "To my knowledge this is the only published work of this nature covering conditions in Australia."

Alan says that things have moved on since the article was written and the concept of what constitutes DX has changed, but the same principles apply. I recommend the article for reading if you can locate it.

In the letter Alan also says that: "On the two metre band in the 1950s advanced stations were running about 60 watts plate modulated AM to an 829B or a QJEO6:40 and a five over five Yagi antenna. All crystal controlled, of course, and everyone had his "own" frequency. Receivers were mostly converters with 6/6 cascade RF amplifiers. With the influx of Z calls activity was high - higher than today in fact."

Alan tries to be active on 144, 432 and 1296 MHz on the low end of each band, when time permits.

The One Metre Days

I received an interesting letter from Malcolm Haskard VK5BA, in response to my 1997 series on Six Metres 50 years ago. Thanks for writing Malcolm

In the 1950s Malcolm worked on one, five and six metres and sent me copies of early log book pages. On five and six metres he used a crystal controlled 6V6 oscillator driving push-pull 807s with a 6F6 push-pull modulator, preceded by two 6J7 stages.

The modulation transformer was a 240 volt to 385 volt centre tapped secondary mains transformer used in reverse. A crystal microphone was used. The receiver was a crystal controlled converter with RL18 grounded grid RF amplifier, 6AK5 converter into an AMR-300 Navy communications receiver.

The converter HT was switched to operate the aerial change over relay. The antenna was a three element beam on a length of water pipe.

The one metre gear was the usual self oscillating triodes with lecher lines. The valves were not 7193s but types of similar construction having higher power - he could not recall their numbers but they ran with 12 watts input. The same modulator was used. Receiver was a 955 super-regen into a 6C5 and then 6V6 output. Antenna was a 12 element array mounted on the same water pipe above the 5/6 metre beam.

Most one metre activity was in 1957/58 with call signs noted in the log: VK5s BI, ES, FP/p, FT, FZ, JI, JR, JS, KY, OL, QZ, UA, ZAL, ZAN, ZAQ, ZBH, ZBI, ZBM, ZBN, ZBR, ZBX, ZBY, ZBZ, ZCD, ZCR, ZCX, ZCZ, ZDF, ZDH, ZDO, ZDS, ZDU, ZDX, ZGA, ZGK, ZGS, ZJ, ZK, ZOA, ZT, ZXL. These will bring back memories to the OTs. It's interesting to note the high number of Z calls, many of whom were responsible for hastening the opening up of the various VHF bands throughout the 1960s. Being limited to those bands, they used their skills to build equipment and populate the bands.

Struck deep in the Adelaide Hills I (VK5SLP) didn't work any of those stations with my one metre gear, spending my time with a few close-by stations.

Using Weather Charts to Predict Propagation

Russell VK3ZQB, with some concern, has sent the following information. "All the AXM charts have a reference at the top of the picture, to read their special notice. The MET may cease transmissions of AXM and AXI in the next few years. This service is the only free-to-air weather fax broadcast that we have available to us. If they close the service then we will have to pay for the information from Infotax or as a registered user of the MET's Web site

"I have written to the MET to put my reasons for the MET to consider continuing the service and I urge all amateurs to do the same. Without the MET service we will find

it extremely hard to get information that will allow us to predict tropospheric propagation. I am interested in any comments.

"The questionnaire can be found on the Web site <www.bom.gov.au> under AXM schedule."

Here is a copy of the questionnaire:

Australian Radio Facsimile - Future of AXM and AXI Services

The AXM/AXI Services

The Bureau of Meteorology has for many years been providing the marine community with weather information in the form of charts broadcast via its AXM/AXI radiofacsimile services. The radio transmitters for AXM and AXI are operated by the Royal Australian Navy.

The Future

The Navy is developing its radio broadcast systems, and is planning to commission a new communications facility in the next few years. HF radio transmissions for the purpose of AXM/AXI are not currently included in plans for the new defence communications facilities. This Survey - Your Input Highly Valued. This survey will help the Bureau of Meteorology assess how you use the AXM/AXI radiofacsimile services and the impact for you and your activities if they ceased at some future stage. Please take the time to fill in your responses to our questions following. Your input will be an important factor shaping the future of Australian marine weather services to shipping and other activities taking place on the high seas.

Q1. Please provide your name, office/rank, name of company/vessel, and address.

Q2. What class of user are you? (merchant ship/fishing vessel/transport/yacht/hobby/other.)

Q3. What routes/regions do you operate in, or, what country/state/province/city do you operate from?

Q4. What AXM/AXI charts are of most importance to your activities?

Q5. Do you use other marine radio services, eg VHF, HF voice, for your activities? Please specify.

Q6. Do you have Satcoms available, eg Inmarsat A, B, C, M? Please specify.

Q7. If AXM/AXI services are no longer available to you, what alternative means for obtaining weather charts would you use?

Q8. Overall, please describe the impact of the service ceasing.

Please send your survey responses no later than 31 December 1998 marked for attention of SRRT, to the Bureau of Meteorology by either of the following methods:

Mail: SRRT, National Meteorological Operations Centre, Bureau of Meteorology, GPO Box 1298K, Melbourne Victoria 3001. Fax: 03 9662 1223.

Unless you download the information yourself, you will need to copy the above questions and attach your answers in your submission

Those interested in long distance VHF/UHF propagation are urged to respond - if you leave it until later you will forget!

ACA Discussion Paper on Proposed Spectrum Sale of 3.410-3.600 GHz

David VK5KK advises that it is worthwhile reading about the latest threat to the 3.4 GHz band due to a proposed spectrum sale:

"Please read the ACA's latest <http://203.37.2.230/3_4GHz/lastpap.pdf> of 25 pages examining the possible auction of this segment, over and above the existing WLL services that Telstra has in place in ALL States.

"At least the WLL services straddle our narrow-band segment with a satisfactory guard band.

"The situation with this band is not good. Internationally, Region 1 has lost part/all of the band already. Australian usage is minimal, like a lot of our microwave bands. I know that 3 GHz is perhaps used for ATV repeater linking in VK2 (comments please). Other than that about half a dozen VK3, 5, 6s use the narrow band segment along the Southern Bight tropo path and we have one beacon, VK5VF. We have till 24/7/98 to submit comments."

Beacons

Wally VK6KZ reports the Albany two metre beacon is off air with Aub VK6XY and Tom VK6TR looking for a new site for it: "The Augusta beacons are ready but waiting for a site. I have written to local government and hope to have an answer soon."

Closure

As is evident from these notes, activity has assumed its winter all time low. Two metres from VK5 seldom extends beyond 400 km and six metres has gone quiet. It should improve at the next equinox.

There is quite a degree of construction activity for equipment on the microwave bands 2.3, 3.5, 5.6 and 10 GHz, and now a few are looking at 24 GHz.

Closing with two thoughts for the month 1. At a dinner party we should eat wisely, but not too well, and talk well, but not too wisely, and

2. It might be a good idea if the various countries of the world would occasionally swap history books, just to see what other people are doing with the same facts.

73 from The Voice by the Lake

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Over to You

All letters from members will be considered for publication, but should be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents

Initiatives for the Environment

Our Editor's "Repair or Recycle" editorial in the June issue of *Amateur Radio* aroused my interest. The headline, "Initiatives for the Environment" is from an in-house brochure published by, and for, the largest electrical, and one of the largest industrial, firms in the world.

So perhaps there is a glimmer of hope to so many of us, like Editor Bill, who wonder how the increasing number of scrapped TVs, autos, toasters, PCs, etc will affect our environment.

Have you thought about it?

The German firm Siemens has accepted the problem and their part in solving it, and is taking very positive steps to alleviate waste at the risk of pricing itself out of the market.

Briefly, it all starts with product development and design, and company regulations apply to design, production, use, disposal and recycling. All this applies to power plants, transmission and distribution systems, transportation, domestic equipment, communications, and brungs in air, water and soil quality maintenance.

Examples are a completely recyclable telephone, halogen free plastic PC boards, combined-cycle power plants, etc.

In this firm, each production facility has its environmental protection officer to guide and assist in good practice, but every employee is involved. We wonder how many firms in this dollar-chasing world are giving any consideration to the effects of their products on the environment?

Peter Brown VK4PJ
16 Bede Street
Balmoral QLD 4171

MIR Success

Congratulations and thank you for the fine front page of the June issue. This excellent photo of our fellow amateurs in action is the type of thing we like to see. Also, we appreciate the articles on the MIR project.

It was a real event. Andy was a great guy

to talk to. I had spoken to him six times, once when mobile, and also once handheld. He was quite interested that I was out in the field looking after a young cow with a new calf.

One thing Andy always wanted to know, is what the media were telling us. I was able to tell him of the excellent video clips he had made, and also of an article in our magazine including the fine photo of himself.

I had also been invited to our local ABC regional radio studio, where the announcer interviewed me and made a six minute recording including a few words from Andy that I had recorded. It was put to air on the breakfast session.

Some six other VK6s contacted Andy, some more than once, so we in VK6 have done our bit toward this historic event.

One thing I must point out, however, is in regard to the MIR footprint. In fact, it actually covers far more than Melbourne to Ceduna. At the right moment it will mostly encircle the whole of Australia. So you see that Ceduna is not the westernmost point of Australia at all!

So many times we in VK6 have heard Andy talking to the rest of Australia, as far as VK2, and on the PMS we see VK5s (VK5ZAI) and VK3s, VK2s, etc.

In previous times I recall seeing MIR responding to Maggie VK3CFI on uplink. In fact, I was able to "beacon" my greetings to this illustrious lady, something we mustn't do these days!

Frank Kruttschvil VK6M
RMB 9021
South Coast Highway
Albany WA 6330

Club for Motor Users

While most amateur radio organisations and clubs report dwindling membership, the FISTS club continues to grow steadily. FISTS is an international club for those who favour CW as a mode to be preserved and encouraged.

The highest proportion of members is in Great Britain and North America with only a sprinkling in Australia and New Zealand. Impediments to down-under membership are the need to send the ten pounds subscription to England and the need to distribute the newsletter from there.

It has been agreed that the membership could be administered and the newsletter

Update

Corrections to previous issues of Amateur Radio magazine

The DSB40 - A 40 Metre DSB Transmitter

(published on pages 9 - 11 05 *Amateur Radio*, July 1998)

Peter Parker VK1PK, the author of this article, has pointed out the following amendments which need to be made to the published article:

1. The primary of the T50-2 toroid in the 2N2222 collector circuit should have 15 turns and not 13 as shown in the text (the last paragraph in column three on page 10).

2. The trimmer capacitor connected to the collector of the 2N2222 should be "40-250p", not "40-25p" as shown in Fig 1.

3. A 1 μ F tantalum capacitor should be wired between pin 1 of the NE602 and earth.

4. The capacitor between pins 2 and 6 of the 741 should be "2.2" nF and not "22 nF", as shown in Fig 1.

5. The positive end of the 10 μ F capacitor should connect to pin 3 of the 741.

It might be a good idea to correct your copy of the July 1998 issue of *Amateur Radio* now.

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printed and distributed locally. This means that it has been possible to reduce the subscription significantly.

I would be pleased to hear from WIA members who would like to join FISTS. I can be contacted at my Call Book address, by phone 64 4 473 0847, fax 64 4 473 0848, or by e-mail at sur_lancelot@compuserve.com. I will reply to all enquiries promptly.

Ralph Sutton ZL2AOH
12c Herbert Gardens
186 The Terrace
Wellington NZ 6001

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World Amateur Radio Day

This rather auspicious occasion is set down to be celebrated on 19 September 1998 with the theme "Communicating World-wide for Three Quarters of a Century".

This is in honour of the first two-way transoceanic amateur radio contact made on 27 November 1923 between a French station 8AD and American stations 1XAM and 1MO.

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WIA Divisions News

VK2 Notes

Affiliated Clubs Conference

The Conference of Clubs held on Saturday, 13 June at Amateur Radio House, Parramatta, was again a huge success with wide-ranging concerns, ideas and suggestions freely discussed by all the delegates.

Last year, a Club Delegate had laughingly complained that because the toilets were located on the ground floor some inconvenience was experienced when a comfort stop was necessary. The complaint was noted and subsequently discussed by the Directors whilst finalising conference details. It was felt that the complaint was too frivolous to warrant major building alterations to provide an upstairs loo but that in the spirit of the complaint something should be done. Vice-President Brian VK2WBK, who works for Tamworth Council, suggested that he may be able to borrow a portable loo. However, Council decided that a portable loo clearly labelled "Tamworth City Council" standing in the corner of the conference room was unlikely to fit in with the decor and the idea was dismissed. The Treasurer Eric VK2KUR said that whilst he appreciated that something should be done he was totally against any major expenditure. A number of other suggestions were made, none of which can be repeated in this column (some even physically impossible!!!) and it was finally left to the Secretary to try to resolve the dilemma - albeit at minimum cost!

Therefore, before the conference was officially opened by President Michael Corbin VK2YC, Eric VK2EFY, the Division Secretary, explained to the meeting the deliberations which had taken place. He then presented to delegate Brian VK2UBF, (having due regard to Council's "minimum cost" directive) a "porta-potty" (plastic bucket) and a roll of toilet paper - much to the delight and applause of everyone present. Brian, when accepting this "generous" gesture by Council, said that it was available for use by other delegates during the conference providing a suitable location could be found.

When the laughter had subsided Michael officially opened the Conference and the formal agenda began with the introduction

of Members of Council. As each Councillor was introduced they gave a report to the meeting in respect of their areas of responsibility such as Administration, Finance, Membership, Education, Dural, etc and delegates could ask specific questions in respect of the portfolio. The delegates also introduced themselves and identified the Club they represented, many giving a brief description of the area covered and the size of the club.

A number of motions and discussion items had been submitted by some Clubs covering topics such as problems with Repeater applications; reduction of frequency spacing for repeaters from 25 kHz to 10 kHz; a better arrangement for reciprocal licensing similar to USA and NZ; the omission of information from the 1998 Call Book such as DXCC listings, WICEN information and also incorrect or incomplete information contained in the publication; the need to attract membership to the WIA, particularly young people; and the need for guidance from Council to assist Clubs in dealing with local publicity and the media. In each case the representative of the Club submitting the item gave a brief explanation to the Conference on the reasons behind the submission.

The Chairman reported that in a number of cases Council were already taking appropriate action. For example, David Thompson VK2NH was already in the process of drafting Publicity Guidelines and would shortly put them before Council for approval. It was also suggested, and endorsed by the meeting, that each Club should have a small supply of Membership Information kits to assist them to process any requests from possible

members. Eric VK2EFY, Secretary, said that copies would be sent out with the next Club postings.

After lunch Vince Cottuli VK2DVC, a Field Officer of the ACA, arrived to take part in the discussions and to answer questions pertaining to the ACA. Vince proved to be well informed, open and, with his Irish wit, very entertaining, quickly winning over any sceptics of the friendly relationship and spirit of mutual co-operation which has been established between the ACA and this Division.

The day was fully catered with lunch (sandwiches, etc) and evening dinner supplied by outside caterers; morning and afternoon tea, coffee and cold drinks were supplied by the office. As one delegate subsequently recorded in his report to his Club (he kindly sent a copy to the office) he gave one out of five for lunch (sandwiches, no matter how varied, he says, are boring) but he gave six out of five (yes six!) for the cooked dinner - high praise indeed!

The consensus of opinion by Club Delegates was "very useful and enjoyable, looking forward to the next one in November!"

Membership Drive - "New Member Prize"

After the break for lunch at the Club Conference, President Michael Corbin VK2YC was presented by WIA Member Les Berich VK2MPZ with an ICOM 706 Mark 2 (value approx \$2400) which had been kindly donated jointly by Icom Australia and Les' own company Amateur Transceiver Radio Centre of Girraween (NSW). The unit will be the "New Member Prize" for the VK2



VK2 Division Membership Long Service Awards (l to r) N Gough VK2NG (65 years membership), W L Woolnough VK2CW (75 years), J G Cowan VK2ZG (64 years) and W C Hall VK2XT (67 years).

Division and will be drawn at the Annual General Meeting in April next year.

In accepting the donation Michael said that, whilst the initiative for the membership drive had been taken by Council, the grass-roots was at Club level. Everyone present was urged to promote the WIA within their own clubs and particularly to encourage new club members and those attending education classes to join the Institute.

Our sincere thanks to Icom Australia and Amateur Transceiver Radio Centre for this very generous donation.

Food for thought! If every club in NSW could persuade only three members to join (or rejoin) the WIA, the result would be more than a 10% increase in membership of this Division!

Please note that David Thompson VK2NH has relinquished his position as VK2 Notes Editor and, until further notice, items for inclusion should be forwarded to the Paramatta Office of the WIA NSW Division. *Eric Fossey VK2EFY*

WIA Victoria News

Outwards QSL Bureau

The response so far to the changes in the operation of the Outwards QSL Bureau announced last month has been very positive. A number of members have commented that they see the reasoning behind the changes and are committed to doing their bit to make sure the free membership service continues.

An information sheet and QSL preferred prefix list was sent to each member, either as an insert in *Amateur Radio* magazine or direct mail to those members who do not subscribe to the magazine. It is also at www.itsa.com.au/~wivawic the WIA Victoria Web site.

We are still experiencing problems of people automatically generating QSL cards for each contact, even if they've contacted the same station many times before.

For example, half a dozen cards were put in the Bureau recently for a series of contacts over a half hour period between two stations in metropolitan Melbourne. The same thing is happening with frequent interstate and overseas contacts, which only clogs up the bureau system

Rumoured 70 cm Threat Checked

The WIA Victoria Chief Executive Officer, Barry Wilton VK3XV, has had discussions with the Australian Communications Authority (ACA) in Canberra and Melbourne regarding correspondence circulating concerning the possible use of the 70 cm band during the Sydney Olympics.

It was stated that 70 cm may be used during the Olympics in Sydney and, to a minor extent, in Melbourne in the year 2000.

Barry Wilton has received assurances there is unlikely to be any restriction on the amateur use of 70 cm in Victoria. Rumours suggesting that we may permanently lose part of that band to commercial interests were refuted totally.

Whilst a number of commercial operators have made no pretence about their desire to gain access to portion of the 70 cm band, WIA Victoria believes this to be unlikely in the near

Stop Press

WIA Policy Misreported

Erroneous and malicious information has been disseminated about the WIA policy in relation to the operating privileges for radio amateurs.

The facts are that the Australian Communications Authority had asked the WIA two months ago for comment as it was considering allowing Novice licensees the use of SSTV as an additional privilege.

A postal vote was sought on the matter, through the medium of a motion proposed by WIA Victoria that the WIA does not seek further privileges for Novices.

The supporting argument for the motion was that Novice privileges had been expanded over the past five years, eroding the relativity between Novice and AOCIP, and that situation was providing very little incentive to upgrade.

The postal motion was carried, and it became WIA Federal policy. The WIA Federal Councillors during a recent telephone hook-up were advised of the outcome of the earlier postal vote, but the topic was not discussed further during the teleconference.

WIA Victoria is exploring options to give Unrestricted (full call) licensees improved operating conditions and privileges.

future as the Department of Defence has signified it has no intention of relinquishing the band as primary user in the near future.

Can You Help?

A researcher has approached WIA Victoria seeking help in locating friends of the late Brian Falkenberg 3FA, who operated in the 1930s out of a property "Bonnie Hills", near Byaduk.

In addition to an interest in radio, Mr Falkenberg was possibly one of Australia's first rocketry experimenters, most likely pre-

dating his involvement in amateur radio. It is hoped that he may have mentioned this to some of his radio friends, or someone reading this article could have some knowledge or seen a contemporary report on rocketry involving him

His family, unfortunately, have no knowledge of his rocketry work. Kerrie Dougherty of the Powerhouse Museum is researching paper on early Australian rocketry activities.

If you can assist the contact details are: Kerrie Dougherty, Curator of Space Technology, Powerhouse Museum, PO Box K346, Haymarket NSW 1238 (note that this unusual postcode is correct - it is a special one for the museum). Phone: 02 9217 0204 (8 am - 5 pm). Fax: 02 9217 0355. E-mail: kerried@pnm.gov.au.

Repeater Report

New equipment installed for the VK3RSG two metre repeater is currently suffering a 5 dB intermodulation problem with the locally co-sited FM community radio station.

Part of the problem is associated with the condition of the old tower on which the antennas are located. The Victorian Technical Advisory Committee is investigating options concerning the replacement of the tower and negotiations are proceeding.

The monthly broadcast from VK3BWI is now directing a two metre signal to the Mt Baw Baw repeater VK3RWG. However, the repeater receiver has a fault and repairs are being undertaken by the WIA Eastern Zone Amateur Radio Club.

There are also a number of difficulties with the antenna which was wrongly located on the tower by commercial riggers while they were working on another operator's installation.

Repair or relocation of the antenna is extremely difficult in the winter icy conditions and a commercial rigger must be used.

Unfortunately, also located on the tower is a pay TV service operated by Austar. This 24 hour service radiates a high level of energy and no-one is permitted to work on the tower, other than when Austar can reduce power to a safe level

The commercial agreement which Austar has entered into with the Alpine Resorts Commission is that the reduction in power will only occur in the early morning hours between 3 and 5 am. How would you like to climb a tower, in the icy conditions, in the mid-winter darkness?

We may have to put up with this less-than-satisfactory antenna until the summer months.

FM92 70 cm Model Delay

WIA Victoria had anticipated it would have for sale a small number of Philips FM92 radios suitable for conversion to 70 cm

However, the transaction has not been finalised and it is unlikely that these units will be available for some time.

Agility vs Band Plans

Earlier this year a group of radio amateurs began using a two metre frequency for local contacts. On a number of occasions their QSOs interfered with a repeater in Gippsland.

The incident is nothing new and, like other occasions, had resulted from the unwitting use of a VHF or UHF frequency - a situation that can be easily avoided by checking with the band plan.

With the recent increase in two metre activity due to the availability of Philips FM92 synthesised radios, there has been some operation on FM outside the band plan. These radios are not really different in terms of their frequency agility from commercially made amateur transceivers.

No matter what band you use it will have a band plan as part of the self regulatory ethos of our hobby. These plans are designed to facilitate orderly operation and reduce incompatibility problems between various modes and operating techniques.

The band plans are "gentlemen's agreements", but there is also an overriding obligation on radio amateurs not to use the spectrum to the detriment of other users.

Operating deliberately contrary to the band plans, or in ignorance of them for a prolonged period, has the potential to cause harmful interference and lessen the enjoyment of our hobby by others.

Jim Linton VK3PC

VK5 and VK8 Notes

Within the VK5 Division efforts have been made to communicate with members with a mixed degree of success. Weekly news broadcasts, packet radio notes, Divisional Journal, monthly meetings, and monthly magazine notes are provided. A certain amount of information is made available by way of the Internet.

It is recognised that many people do not have access to all of these facilities; however, we hope we are reaching most members.

I must say, though, that success in communications requires a "Two Way Street." That is, we still need to hear more from YOU.

Clubs' Conference

The recent Clubs' Conference seems to have been a reasonable success although it would have been advantageous if more clubs had provided representation. It has been suggested that a further event of this nature should be held in around another six months time.

Material resulting from the conference has yet to be examined by the Divisional Council and resultant decisions are yet to be made. It would be nice if a greater attendance at the next conference resulted from the efforts of those involved.

Such conferences are one way in which members' opinions can be gathered; however, it is certainly the case that the majority of members do not belong to their local clubs. So, here again the need is shown for some other way to be found to determine how you, the members, feel and what you want your organisation to do.

My reason for repetition of this point is that it is vitally important that proper and balanced representation be provided to the authorities on your behalf. The vocal "few" who do communicate with council do not necessarily represent your opinions and in fact their claims may be based on a very narrow view.

The only way to improve the situation is for your council to do as it has been doing and continually remind you that we need to hear from you. The council must be open and honest in its activities and also must not be seen as bowing to pressure groups of any kind or become over influenced by seemingly strong and authoritative individuals. This council is certainly one of consensus.

Constitutional Review

I am hopeful that the intended revision of the Divisional Constitution may show a way to improve representation of members' views. Whether this will result is of course yet to be seen.

I have no immediate indication as to when the first draft of any proposed review will become available. Our intention is, as soon as possible, to allow members to view the drafts with the aim of obtaining as wide a spread of opinion and ideas as we can.

The MIR Connection

I have been attempting, by way of the Divisional News broadcasts, to keep you informed regarding various aspects, such as QSLing, resulting from Andy Thomas' operations from the Space Station under the call sign of VK5MIR. I hope the latest developments will be elsewhere in this issue.

Meeting Program

As at writing, the program for meetings beyond July has not been set. I would expect that this will be done following the coming Council meeting at which allocation of portfolios to the end of the Divisional year will be determined.

Burley Griffin Building

Quite some time has elapsed from the first indication given several years ago that our

continued occupancy of the Burley Griffin Building (BGB) as a Headquarters was in doubt.

The previous council had encountered severe difficulties in negotiations with Thebarton Corporation officers which undoubtedly placed them under considerable stress. Since then Local Government changes have taken place amalgamating councils, and the Thebarton Corporation no longer exists.

Approximately 12 months ago we were informed that the new authority, the West Torrens Council, intended to sell the Council Depot property in which the BGB is located. Ongoing discussion at a higher level with those concerned has been slow and, whilst amicable, has not shown any firm result. There has been some doubt as to whether the BGB would be included in any sale.

The wheels of bureaucracy invariably move slowly, but we hear that the process is still being followed through although no definite dates can be given as to any likely firm action. We are virtually still at the same position as existed 12 months or more ago. Discussion and negotiation has included both the National Trust and the (state) Department for Environment, Heritage and Aboriginal Affairs, Heritage Branch and will still continue.

The Mayor of the West Torrens Council, Mr George Robertson, OAM, JP, who has been most helpful, is most unfortunately suffering from severe ill health which almost precludes him from his continued participation in the ongoing discussions. We do offer our thanks to him for his interest in our activities and wish him well towards a recovery. Members will be kept informed as much as possible as to progress in the matter of our occupancy of the building.

Ian Hunt VK5QX

VK6 Notes

VHF Group FM Field Day

This four hour contest runs from 12.30 to 16.30 WST (0430 to 0830 UTC) on Sunday, 20 September, and is limited to the frequencies and modes available to Limited Novice operators, namely FM and packet operation on 2 m and 70 cm.

All grades of licence are encouraged to enter. This is a great chance for entry level stations to get the thrill of some 'long-haul' VHF and UHF work (ie other than through a repeater), and for higher grades of licence to encourage them.

Points are scored for two way contacts between pairs of stations, at least one of which must be in the VK6 call area. Fixed station to fixed station contacts are allowed, however,

cross-band contacts, contacts via repeaters, and contacts via third stations on packet, do NOT count towards the score (satellite contacts are ruled out by virtue of the frequencies available to Limited Novices).

The contest is divided into two intervals of two hours each. In each two hour interval, two stations may work each other for scoring contacts once on each band (2 m and 70 cm) using FM phone, and once on each band using packet. Each scoring contact is worth one point times the following multipliers:

Distance Multipliers

Distance multipliers are 20 km, 1; 40 km, 2; 60, 3; 80, 4; 100, 5; 120, 6; 140, 7; 160, 8; 180, 9; 200, 10; and 200+ km, 11.

Portable and Country Station Multipliers
A multiplier of two applies if the other station is portable, and/or a country station.

A portable station is one which is being operated away from the usual station address and which is not powered from AC mains. Mobile stations (including permanently mobile) count as portable, as does the VHF Group club station, VK6WH.

A country station is one which is at least 60 km from the GPO Perth.

Novice Station Multiplier

Contacts with Limited Novice and Novice stations qualify for a four times multiplier.

The contest exchange will consist of a three digit serial number starting from 001 (to which an optional signal report may be prefixed) and the station location.

There are four sections of the contest, Novice Portable, Novice Fixed, Portable (non-Novice), and Fixed (non-Novice). The first two are open to NAOLCP and NAOCF holders, and the other two to all other license holders plus VK6WH.

Group Operation

There is no provision for club stations, but contacts with club stations count toward the score of individual amateurs entering any of the four sections. Groups of up to three amateurs may pool their equipment and operate from a single portable site under their own individual callsigns. The use of multiple callsigns by a single individual is not allowed.

LOGS must be sent by 28 September 1998 to: Contest Manager, WA VHF Group (Inc), PO Box 189, Applecross WA 6953.

The Contest Manager's decisions and interpretation of the rules are final.

I've paraphrased the rules for brevity; any errors are mine. Contact the VHF Group if you want an original copy of the rules.

Snippets from the WIA Council Meeting Minutes

It was agreed that the licence for the 28 MHz "conventional" beacon VK6RWA should be renewed and the service continued. This service complemented the international

beacon system. Keith VK6XH advised that favourable reports had been received by the Northern Corridor Radio Group who maintain the transmitter.

Will VK6UU advised he had recorded the VK6WIA Broadcast News as a digital RealAudio file on computer disk. This led to discussion of the possibility of placing such a recording on the Division's Home Page each week. A trial of the process will take place and the feasibility of a permanent service determined, providing an operator or operators can be found to handle the recording and uploading.

ACA had written to VK2 Division advising that two 12.5 kHz channels had been licensed temporarily to non-amateur organisations in the 70 cm band for purposes associated with the Olympic Games.

The postal motion put by VK3 that no further licence privileges would be sought for other than the unrestricted licence grade for three years, was passed. VK2, 3 and 4 voted for, VK6 against, with no votes recorded for other Divisions.

There had been a proposal for a new Liaison committee from VK1.

A request has been received from Kalgoolie for replacement equipment for the Kalgoolie and Kambalda repeaters which had been destroyed by a lightning strike (the Secretary was advised to inform Kalgoolie of a source of FM92 units).

Keith VK6XH reported on progress with assistance to Jim VK6RU with the QSL Bureau. A backlog of unclaimed cards had been largely cleared by post. Some large bundles remained and Council agreed that postage costs for these would be borne by the Division. Neil VK6NE pointed out that members should be encouraged to use standard size and lightweight materials for cards to help keep postage costs down.

Keith VK6XH reported on the Whiteman Park Amateur Radio Centre project. Input had been received from seven clubs. Most did not see how they could contribute to or use the proposed facility.

However, the Northern Corridor Group were enthusiastically in favour, with the WA VHF Group suggesting that individual members might contribute physically to the project, although the Group was unable to promise financial resources.

Don VK6HK advises that the WIA meeting minutes are archived on VK6BBR in FBB DOS directory C:\WIAMINS\COUNCIL for the Council minutes, and in C:\WIAMINS\GENMEET for the General meetings (now defunct). They are uploaded on the Monday following their use for Broadcast following the Tuesday meeting if you can work that out! All this is subject to Don remembering to upload them

There are Council and General meeting minutes there starting from early 1997. So far there has been no reaction to this 'service'. Is it worth the trouble?

The files are ASCII text and can be retrieved by going into FBBDOS on VK6BBR and downloading using the get <filename> command, or using REQDIR (for a file list) or REQFIL from a remote BBS. Use <? REQFIL> for the procedure.

The minutes are, of course, distributed also as a packet bulletin addressed to WIA@VKNET at the same time.

E-mail Distribution of VK6 Notes

Do you have Internet e-mail access? Would you like to receive VK6 Notes via e-mail, approximately three weeks prior to publication in *Amateur Radio*? If so, send me an e-mail registering your interest, to vk6kch@amsat.org

Chris Hill VK6KCH

"QRM" News — VK7 Notes

"QRM" - News from the Tasmanian Division

As I write, I have just returned from our Tasmanian Divisional council meeting in Launceston. It was a very good meeting with only a couple of southern Councillors sending apologies. These meetings are held every two months, rotating around the three branches. The next is on 12 September at the Penguin High School; all Councillors please note!

John Bates VK7RT was excited with news that he has arranged a visit by WIA members (limited numbers) to a US battleship scheduled to visit Hobart in early August. Quite a coup seeing that only four group visits are allowed. We've asked for details of any amateurs aboard so that we can really show Tasmanian hospitality.

Southern branch at present has eight students in their radio classes, and Morse classes for these should start anytime now.

WICEN in the South

This group of enthusiastic radio amateurs is experimenting with portable simplex and repeater stations in the very difficult Tasmanian mountainous terrain. We've got some very wobbly locations over here!

The recent Saxon Safari Tasmania car rally on 4 and 5 July, when the group had to provide the command network between headquarters and the special stage starts, proved that amateurs can deliver. Three cross-band portable repeaters were used. It was a credit to those 15 amateurs plus helpers who

braved the weather to get "top marks" from all the organisers.

Two metre and 70 cm Yagis with masts have been built and their next project is to install a portable UHF repeater and antenna at the Southern Branch Domain clubrooms to give better coverage for their Friday night WICEN Group net on 438.525 MHz. This good news is from Garry VK7JGD.

Membership

Our membership drive is still bringing new members in (we've got to give the girls in the Federal Office something to do!). We've still a way to go before catching up with Victoria, but we're trying.

We Are Challenging

This year the Tasmanian hams are absolutely dedicated to licking the daylight out of the hams on the island up north in the Remembrance Day Contest. By this statement we don't expect the northerners to just lay down and admit defeat before the Contest even starts. We just say "you are on notice - Tassie is going to win". It's up to you to prove us wrong.

The Social Side

On Wednesday, 8 July it was my pleasure to visit the Northern branch for a Chinese feast at a very fine restaurant. Great meal (good price too!), and wonderful fellowship with 27 hams and their families. Things are really buzzing around Tasmania.

Ron Churcher VK7RN

WIA Call Book 99

Coming soon!

WIA QSL Bureaux

The official list of VK QSL Bureaux. All are Inwards and Outwards unless otherwise stated.

VK1	GPO Box 600, Canberra ACT 2601
VK2	PO Box 73, Teralba NSW 2284
VK3	40G Victory Blvd, Ashburton VIC 3147
VK4	GPO Box 638, Brisbane QLD 4001
VK5	PO Box 10092, Gouger St, Adelaide SA 5000
VK6	GPO Box F319, Perth WA 6001
VK7	GPO Box 371D, Hobart TAS 7001
VK8	C/o H G Andersson VK8HA Box 619, Humpty Doo NT 0836
VK9/VK0	C/o Neil Penfold VK6NE 2 Moss Court, Kingsley WA 6026

Technical Correspondence

All technical correspondence from members will be considered for publication, but should be less than 300 words.

Return Loss

I have the following comments about the article in *Technical Abstracts* by Gil Sones in the April edition of *Amateur Radio*, and the follow up by Lindsay Lawless in *Technical Correspondence* in the July edition.

I agree with Lindsay that the term Return Loss is not used much in the amateur literature but is commonly used in the professional radio arena, with regards to specifications and field measurements. The advantage of using Return Loss (RL) is that if a directional wattmeter is used that is calibrated in dBm (logarithmic power level referenced to 1 milliwatt) or dBW (logarithmic power level referenced to 1 watt) then RL is directly determined from a measurement of both reflected and incident power as in the following formula:-

$$RL = P_{in} - Pref$$

For example, if $P_{in} = 100$ watts (+50 dBm) and $P_{ref} = 1$ watt (+30 dBm) then

$$RL = +50 - (+30) = 20 \text{ dB}$$

From the table provided in the original article this is SWR = 1.22.

I do not agree with Lindsay's statement "it is not a different way of expressing SWR". As Lindsay rightfully points out, RL and SWR are both different ways of expressing p , the voltage reflection coefficient. From his formulas we have the following relationships:-

$$p = (SWR - 1)/(SWR + 1)$$

$$RL = -20 \log p$$

therefore $RL = -20 \log(SWR - 1)/(SWR + 1)$ and is obviously a different way of expressing SWR.

RL is not "the power taken by the load", but gives the ratio of reflected power to incident power, and hence one can deduce the ratio of absorbed power to incident power and calculate this if the incident power is known.

In the above example, where we measured an RL of 20, we know this represents 1% of incident power being reflected, therefore 99% of the power must be taken by the load. Therefore, with 100 watts of incident power, 99 watts are absorbed by the load.

$$p = 10 \text{ raised to the power } (-RL/20)$$

ie, $p = 0.1$, however p is the voltage reflection coefficient.

To get an equivalent power reflection coefficient this is squared to give 0.01 which is 1% when expressed as a percentage.

Lindsay's own definition of Return Loss says that when p is expressed in a logarithmic form it is called Return Loss, so this is not only known to Gil.

Lindsay's last paragraph is enlightening if we use the term RL as defined by Lindsay instead of pdB.

$$RL(input) = RL(output) + 2 \text{ loss}$$

For $P_{in} = 200$ watts (+53 dBm), cable loss = 3 dB, cable to ant RL = 20 dB.

$$RL(tx) = RL(ant) + 2x \text{ cable loss} = 20 + 2(3) = 26 \text{ dB}$$

This tells us that 200 watts leave the transmitter (+53 dBm), 100 watts reach the antenna (+50 dBm), 1 watt is reflected (+30 dBm), 99 watts (+49.96 dBm) are absorbed by the antenna, and 1/2 watt (+27 dBm) reaches the transmitter as reflected power.

By using Gil's table we can see that the SWR measured at the antenna = 1.22 and the SWR measured in the shack would be approx 1.1

Using this formula it is possible to measure the loss in a transmission line if the RL can be measured at both ends. By using an open or short at one end, then only the RL needs to be measured at the generator as the RL at the open/short is 0 and the simplified formula is derived:

$$Loss = RL/2$$

Peter Reichelt, VK5APR
37 Collingwood Ave
Flinders Park SA 5025

Club News

Hunter Branch Radio Group

A special birthday party was held for Jim Cowan VK2ZC of Newcastle on 21 June at Glen Martin Park. This property near Clarence Town in the Hunter Valley is the home of Jim's son Doug and daughter-in-law Toni.

Fellow amateurs, work colleagues and family attended the surprise 90th birthday party for Jim, who is the oldest currently active radio amateur in the Newcastle, Hunter Valley area.

Jim spent most of his working life in the technical department of commercial radio station 2KO Newcastle.

Jim was presented with a large-read-out digital clock for his shack.

Rodney Prout VK2CN
Secretary

Hunter Branch Radio Group

Summerland Amateur Radio Club

Sunday, 30 August 1998 is the date for the SARC next annual Hamfest. The venue is our Clubrooms, Richmond Hill Road, Goonellabah, Lismore.

Check out the new amateur radio and other gear on offer. There will be heaps of pre-loved radios, computers and electronics gear as well

as Internet and packet facilities. There will also be ATV demonstrations and a fox hunt.

BBQ and refreshments will be available. Also lucky tickets. Make it a family picnic day, and come along and have an eye-ball with your Ham friends.

More information is available from Carl VK2XLT on 02 6624 3838, sarc@nor.com.au or check out our Web site at www.nor.com.au/community/sarc/sarc.html
Graeme VK2GJ
Publicity Officer

Two Cities Radio Electronics Club Inc

When? Saturday, 8 and 9 August 1998. Where? Murray High School on the corner of Kemp Street and Kaitlers Road, Lavington (North Albury).

What? A Hamfest, commencing from Saturday lunch time at the High School. Tea, coffee and biscuits will be available and, if enough interest is shown, a foxhunt will be held.

In the evening a dinner will be held at the Commercial Club in Albury with guest speakers. The cost for the dinner is \$25.00 per head, but the drinks are on you.

On Sunday, the doors will be open at 0930 for trading.

In addition to the tempting shack additions, new and second hand, there will be talks on packet, SSTV and Internet usage. Hot and cold drinks and food will be available all day.

Come along and make a great weekend. A talk-in will be on VHF repeater VK3RNE on 147.00 MHz, simplex on 146.50 MHz, and UHF repeater VK3RNE on 439.425 MHz.

For further information please contact Greg Sargent VK2EXA on 02 6021 1741 (BH) or 02 6021 5438 (AH); Fred Armstrong VK3XLV on 02 6026 7350; or Gary Bonner

VK3TGB on 02 6024 7344 (AH)
Fred Armstrong VK3XLV

Wagga Amateur Radio Club Turns 30

Way back in 1968 the present Wagga Amateur Radio Club was formed and has operated continuously ever since.

To celebrate the milestone, the Club is inviting anyone who has had any association with us during that time to a Formal Dinner The Dinner will be held on Saturday, 29 August 1998 at the Commercial Club, Gurwood Street, Wagga Wagga.

During the afternoon, the Club will be holding a display at the Commercial Club of memorabilia along with amateur radio displays. This part will be open to the public.

The Dinner will be \$25 per head and bookings can be made by contacting John VK2YW on 02 6925 1720 (after hours) or by writing to: The Secretary WARC, PO Box 294, Wagga Wagga NSW 2650.

John Eyles VK2YW

Moorabbin and District Radio Club Inc

Moorabbin Radio Club Classes

A combined Novice Theory and Regulations course will commence on Thursday, 3 September 1998 at the Moorabbin and District Radio Club in Turner Road, Highbury. This course will be conducted by Glenn Moore VK3FFX and will run for a period of 18 weeks. Further details can be obtained from Glenn on 03 9531 9301 (AH).

Internet Home Page

Over the last few months the Moorabbin and District Radio Club Inc has been developing its home page on the Internet. This page carries the latest information from the club as well as providing links to other radio related sites around the world.

So, why not visit the page at: <http://www.netspace.net.au/~pgirling/vk3apc.html>. Comments on the content of the page are always welcome.

Denis Babore VK3BGS
Publicity Officer

WIA Victoria Eastern Zone Amateur Radio Club

Gippsland Technical Conference 1998

The WIA Victoria Eastern Zone Amateur Radio Club hosted a very successful Technical Conference on 11 and 12 July 1998. This was the first time the Club had attempted an activity of this sort. It was well attended with operators from VK1, 2, 5, 7 as well as from around VK3. An excellent facility, a lecture theatre in the Churchill Campus of Monash University, was provided. Indeed, the hi-tech podium itself was worth travelling to Churchill to see. Formal sessions



Fellow amateurs who attended VK2ZC's 90th birthday party were (l to r) Norm VK2BNS, Ron Daley (work colleague), Rodney VK2CN, Les VK2RJ, Joe VK2VJ, Jim VK2ZC, Ken VK2KG, Len VK2ZFD, Merv VK2DA, Bill VK2XT and Gordon VK2ZSG.

were arranged to run from 1000 to 1730 on Saturday and 1000 to 1200 on Sunday. BBQ lunches were provided for both days with coffee and tea breaks all included in the modest registration fee. These breaks provided opportunities for much rag chewing and inspection of a large array of equipment brought along by the attendees and presenters.

The program commenced with a talk on meteor scatter by Ron VK3AFW. Ron covered the basics of the propagation medium and operating techniques. He showed that a 100 watt station could, with a little effort from the operator, regularly work over distances up to 2,000 km on 6 and 2 m using SSB. Steve VK3OT gave a popular talk on long Yagis for 6 m, giving practical evidence of their capability and comparing several different designs. For example, two stations with optimised Yagis with 14 m booms can regularly work from Lord Howe Is to South West VK3 on tropo on six metres! It has been done.

A series of presentations covered the topic of pushing microwaves up hill. Russell VK3ZQB described the dominant propagation modes and how to predict a band opening on 10 GHz. Trevor VK5NC showed us some of the hardware and exposed some of the traps for constructors. Peter VK3KAI discussed equipment and antennas for 1.3 and 2.4 GHz, (including a long Yagi with an electric fence spacer as a boom). Ralph VK3WRE discussed amplifiers and Alan VK3XPD, who chaired this session, explained where to get the bits for a useful microwave station. Look out for more activity on the microwave bands soon!

John VK3ATQ showed why a noise figure of 2 dB and older style local oscillators make for the best rig for 6 m. During his talk he covered the most significant aspects of design of RF amplifiers, mixers and oscillators and presented results of many tests carried out on 6 m transceivers. There was a surprise or two for those who thought the latest rig is better than its predecessor.

A most interesting and different talk was provided by Doug VK3UM who used his 70 cm EME station to monitor the RF outbursts when the fragments of Comet Shoemaker-Levy crashed into Jupiter. When Doug played some of his tapes it sounded like nothing on earth - literally. The scientific explanations for this are yet to come; however, Doug has provided a unique piece of scientific data in a totally professional manner.

That ended day one and most of the participants retired to the local hotel for an informal conference dinner. The discussions were lively and, after the hotel closed, were continued by a hard core until the wee hours in the accommodation. Some were noticeably slow to rise the next morning.

The morning session commenced with Doug VK3UM giving a practical explanation of EME, covering 50 MHz to 10 GHz. Whilst it is necessary to run high power and have a large antenna to be able to call CQ and get random QSOs off the moon, Doug showed that a well equipped tropo station can work the big guns. An open forum finished the proceedings. The attendees demanded that another be run next year.

One feature of this conference that is usually missing was organised partner's activities. Pauline, XYL of Tom VK3XBG, is to be commended for her efforts on Saturday and Sunday morning. Everyone of the partners had a ball. Tom is to be commended for his efforts in running the BBQs and a comprehensive tour of the nearby Loy Yang, a power station, on the Sunday afternoon. Even the XYLS found that interesting.

The organising committee, chaired by Peter VK3KAI, are to be congratulated for their achievement. A set of proceedings will be available from the Eastern Zone. Ron VK3AFW

The Central Highlands Amateur Radio Club of Tasmania

Twice a year the members of the Central Highlands ARC meet in the Central Highlands of Tasmania for social gatherings. They meet in November at VK7NDO's shack at the Penstock Lagoon, and in July at Tiger Hut at Liawenee.

(Great Lake) Tiger Hut gets its name from the hunt in the early 90s for the infamous Tasmanian tiger in the remote western lakes district. The hut was the base camp until the hunt was abandoned. An Army exercise saw the dismantling and helicopter transfer of it, and the re-erection at its present location. It consists of a huge kitchen/dining area with wood heater, five bedrooms each of four beds, and male and female double toilet/bathrooms.

The weekend of 3, 4 and 5 July saw such a gathering at Tiger Hut. We were pleased to have with us a member from South Australia, Darren VKSPJR, who was picked up from Launceston Airport by Victorian members, Dave and Clairen Wilson, VK3JKY and VK3LCM, who attend all of our gatherings.

Darren was delivered to Tiger Hut, introduced to the voices he knew from Thursday Quiz nights, and settled into a pleasant weekend of socialising and radio contacts made around the world on 21 MHz. Darren used a TS-50 belonging to Dave VK3JKY.

The first job on Saturday was to erect a permanent aluminium mast on the end of the hut. This was fitted with a pulley and line for erection of dipoles and/or flags at this and future gatherings. An 80 metre dipole was erected for local VK and ZL contacts. The 15 metre antenna was a car mounted vertical supplied by David VK3JKY.

By Saturday afternoon the gathering had swelled to around 25 (22 amateurs) with the arrival of "day trippers" from all over the State. A huge fire was lit outside and soon the gathering was solving the problems of the world while warming the outside bits with the fire and the inside bits with liquid refreshments (there was snow on the ground in places!).

A carton of "Fizzy Hop Juice" had been donated by Bob VK7NBF for a fund raiser. This was auctioned and raised \$34.00. The lucky recipient was Bryan VK7ZBE, who donated the contents to all present to enjoy.

It was a very pleasant weekend and my thanks go to all who attended and made it a huge success, especially those who travelled from the North Island. The next gathering will be at VK7NDO's at Penstock Lagoon on the first weekend in November.

**Bob Geeves VK7KZ
President
CHARC of Tasmania**



South Australian visitor Darren VKSPJR and the TS-50 he used at the Tiger Hut.

Ionospheric Update

Evan Jarman VK3ANI

C/o PO Box 2176, Caulfield Junction VIC 3161

Solar Activity

Solar flares increased markedly during the quarter with most activity in May. Of the 27 M and X class flares reported by the Ionospheric Prediction Service, 17 were in May, 15 of these flares occurred in the first ten days of the month.

Two solar regions that appeared late in April were responsible for most of this flare activity. These regions declined as the sun rotated, returning uneventfully on the eastern solar limb later in May.

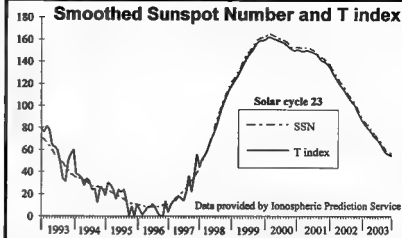
Four class X flares came from this region. They were:-

23 April - X1.2 @ 0523-0623 UTC
27 April - X1.0/2B @ 0855-1659 UTC
2 May - X1.1/3B @ 1331-1351 UTC
6 May - X2.7/1N @ 0758-0820 UTC

Solar flare activity in late May was due to a new region. This produced a class M6.7 flare on the western limb and some more much smaller M class flares when it reappeared on 11 June.

Ionospheric Activity

Again activity in May was affected by events related to solar activity. Polar cap absorption events believed to be associated with proton activity from the X class flares degraded high



frequency activity significantly. Activity was enhanced at lower latitudes and degraded at higher latitudes.

On 4 May the Ionospheric Prediction Service reported f2 critical frequencies in Darwin were enhanced by 70% between 0600-0900 UTC. The peak f2 critical frequency was 17 MHz. At the same time in Hobart, f2 critical frequencies were depressed by 50%.

Spread F was observed at mid to high latitudes during evening hours around 18-24 May. Strong spread F continued at higher latitudes during evening hours until 28 May.

Geomagnetic Activity

Apart from May activity, the only significant disturbances followed coronal mass ejections on 21 April and 22 June when activity rose to minor storm level.

In May there were two disturbances. The stronger was around 2-5 May where the local A index reached 54 and the planetary A reached 96. Auroral sightings were reported during this disturbance, including by the writer who was holidaying in Norway. Aurora Borealis is a

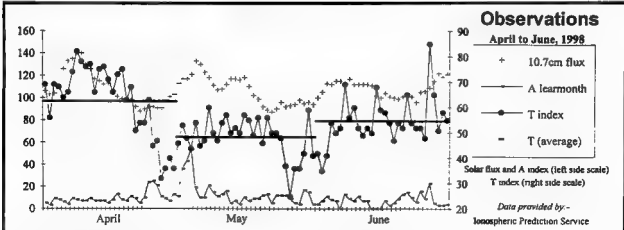
wonderful sight. The disturbance is believed to be associated coronal mass ejections from a class M6 flare on 29 April and the class X1 flare on 2 May.

The latter May activity was probably due to a coronal mass ejection on 27 May combined with some coronal holes as the solar wind had a superimposed shock.

ASAPS Version 4

The Ionospheric Prediction Service have released version 4 of the Advanced Stand Alone Prediction System. The additional features include predictions to regions and the use of 3-D antenna gain patterns which can be imported from other applications. Printed tutorials, which include exercises, have been added to help users understand the program's operation.

A demonstration version can be downloaded from the Web; the address is <http://www.ips.gov.au>. You will need the full system to make realistic predictions. The cost is \$350. Upgrades from version 2 or 3 cost \$50.



HF Predictions

T Index: 85



These graphs show the predicted diurnal variation in key frequencies for the nominated circuits. They also nominate the best amateur band for communication.

The frequencies, identified in the legend, are:-

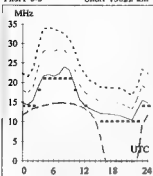
- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency

The predictions were made with the Ionospheric Prediction Service program, ASAPS v3.2. The T index used is shown above the legend. The Australian terminal azimuth, path and propagation mode are also given for each circuit.

nr

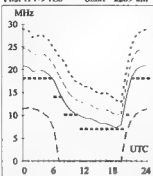
Adelaide-Amman 292

First F 0-5 Short 13022 km



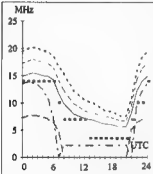
Brisbane-Auckland 123

First F 17-9 1E0 Short 2289 km



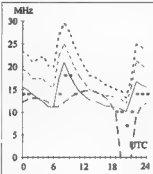
Adelaide-Invercargil 126

Second 2F16-19 2E4 Short 2795 km



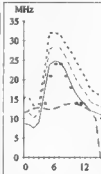
Brisbane-Dakar 217

First F 0-5 Short 18280 km



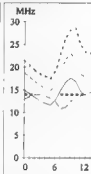
Canberra-Lusaka 239

Second 4F3-4 4E0 Short 11620 km



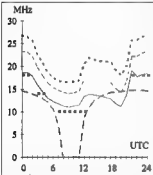
Darwin-London 145

First F 0-5 Long 26170 km



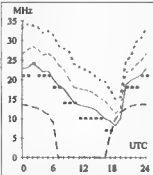
Adelaide-New York 67

First F 0-5 Short 17092 km



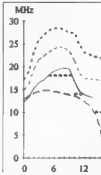
Brisbane-Honolulu 49

Second 3F5-10 3E0 Short 7589 km



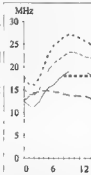
Canberra-Moscow 317

First F 0-5 Short 14481 km



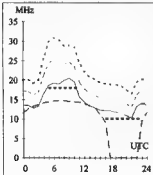
Darwin-London 325

First F 0-5 Short 13854 km



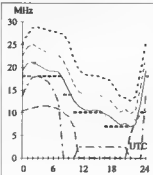
Adelaide-Rome 296

First F 0-5 Short 15337 km



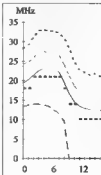
Brisbane-Singapore 293

Second 3F9-13 3E0 Short 6147 km



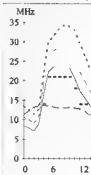
Canberra-Tokyo 352

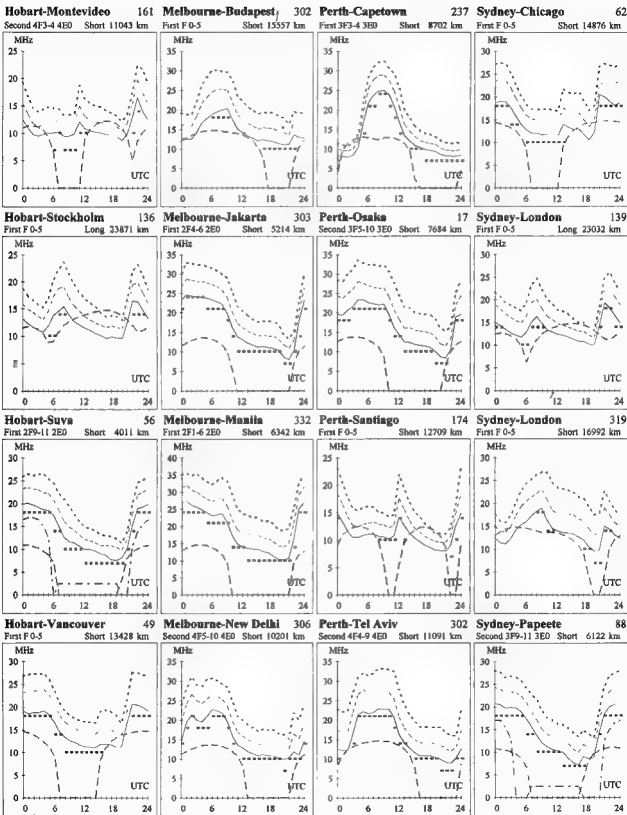
Second 3F4-8 3E0 Short 7948 km



Darwin-Pretoria 242

Second 4F4-6 4E0 Short 10639 km





HAMADS

* Hamads may be submitted on the form on the reverse side of the *Amateur Radio address flysheet*. Please use your latest flysheet where possible.

* Please submit separate forms for **For Sale** and **Wanted** items, and be sure to include your name, address and telephone number (including STD code) if you do not use the form on the back of the *Amateur Radio address flysheet*.

* Eight lines (forty words) per issue free to all WIA members, sixth and tenth lines for name and address. Commercial rates apply for non-members.

* Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment. WIA policy recommends that the serial number of all equipment offered for sale should be included in the Hamad.

* QTHR means the address is correct in the current WIA Call Book.

* Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.

* Commercial advertising (Trade Hamads) are pre-payable at \$25.00 for four lines (twenty words), plus \$2.25 per line (or part thereof), with a minimum charge of \$25.00. Cheques are to be made out to: WIA Hamads.

* Copy should be typed or in block letters, and be received by the deadlines shown on page 1 of each issue of *Amateur Radio*, at:

Postal: 3 Tamar Court, Montrose VIC 3194

Fax: 03 9584 9028

E-mail: vk3br@c031.sone.net.au

TRADE ADS

● **AMIDON FERROMAGNETIC CORES:** For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please). 14 Boonay Ave Kiama. Agencies at: Assoc TV Service, Hobart; Truscott Electronic World, Melbourne and Mildura; Alpha Tango Products, Perth. Haven Electronics, Nowra; and WIA Equipment Supplies, Adelaide.

● **WEATHER FAX programs** for IBM XT/ATs *** "RADFAX2" \$35.00, is a high resolution short-wave weather fax, Morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder *** "SATFAX" \$45.00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, +137 MHz Receiver. *** "MAXISAT" \$75.00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add \$3.00 postage. ONLY from M Delahanty, 42 Villiers St, New Farm QLD 4005 Ph 07 358 2785

● **HAM LOG v3.1** - Acclaimed internationally as the best IBM logging program. Review samples. AR: "Recommend it to anyone". The Canadian Amateur "Beyond this reviewer's ability to do it justice I cannot find anything to improve on. A breakthrough of computer technology". ARA: "Brilliant". Simple to use with full help, the professional HAM LOG is immensely popular (now in its 5th year), with many useful, superb features. Just \$39 (+\$5 P & P), with a 90 page manual. Special 5 hour Internet offer: Demo, brochures available. Robin Gandevia VK2VN, 02 369 2008 BH, fax 02 369 3069, e-mail rhg@ccmail.com.au

● **MECHANICAL FREQUENCY ANALOGUE COMPUTER** out of Perthing missile, \$250. D. Duener Electronics, 51 Georges Crescent, Georges Hall, NSW 2198, 02 9724 6982, fax 02 9725 7850.

FOR SALE AGT

● **Yaesu FT-920 HF** txcvr, CW filter, 51900. Kenwood TS-820 HF txcvr, CW filter, ext speaker, set spare valves, \$490. Bill VK1WN, 02 6258 9295

● **HP432C microwave power meter** with HP478A powerhead and cable. HP618C microwave signal generator, from 3800 to 7800 MHz (6 cm band) Any offers? With purchase of either, you get one HP3476B digital VOM for free. All manuals supplied. Peter VK1CPK, QTHR, 02 6231 1790, phloppen@dynemir.com.au

FOR SALE NSW

● Moving sale! GME 35 amp peak PSU, \$390. Palstar PK-332 MBX, \$400. Kenwood TR-751 2 m SSB txcvr, \$700. Sangean ATS-803A world receiver, \$180. Brother M1799 printer with spare ribbon, \$80. 28 ft tower, rotator, 24 V PS control with 10 ft extension tube, \$300. All excellent condn. Charlie VK2NAJ, QTHR, 02 9604 7454.

● **Icom IC-W21E** dual band 2 m and 70 cm FM hand held txcvr, BP-132 battery pack, workshop manual, \$420. Randall VK2EFA, QTHR, 08 8087 5285

● **Shack clearance!** DC power supplies, various to 10 A, 386 IBM clone computer, \$200. Epson NX15 9 pin printer, up to 14 inch wide, 995. HF txcvr, USB/LSB, 100 kHz, 30 MHz, \$250. AT-120 mobile ATU, 80, 100 m, \$250. IC-720A HF txcvr, damaged iron panel, parts, did work before damage, offers. Ted VK2EZX, QTHR, 019 460 437

● **Aldea, made in USA, SW/HF receiver**, 100 kHz to 29.999 MHz in 1 kHz steps with fine tune, LSB and USB, 12 V or 24 V DC or 100 - 240 V AC operation, box is size of Epson FX80 printer, originally a dedicated weatherfax receiver, receiver and fax printer fully operational but paper obsolete, audio output via speaker or jack plug, \$250. Ted VK2EZX, QTHR, 02 9477 7834, 019 460 437.

● **Kenwood TS-520S** SSB txcvr, s/n 710196, with Hustler 4BTV trap vertical antenna, offers considered. Jim VK2DEC, 02 4751 5531

● **Osborne 486DX computer**, SVGA monitor, 8/170 MB, \$350. Half inch magnetic tape, new, \$10 per 350 m reel. Sharp 226 laptop, mono VGA display, 12 V internal Ni-Cad batteries, charger, case, \$250. 3 Com net builder bridging router, various offers. Neville VK2DF, 02 6373 8624, fax 02 6373 8611 for full details

● **DGT400 satellite digital receiver**, new in box, instruction book, ready for immediate use, \$480 ONO.

Peter VK2BPO, QTHR, 02 9713 1831, branon@bigfoot.com

● **Yaesu FRG7** receiver, mint condn, \$190 ONO. Kevin VK2BJK, QTHR, 02 9449 1598

● **MN-26 radio compass**, \$30, or swap for valve radio, transmitter or test equipment. Ray VK2JLV, QTHR as VK2JZO, 02 9489 8561

● **Angle iron rack** 24" H x 20" W x 17" D, all sides lowered panels, 2 decks, slide in chassis with various transformers, chokes, caps, etc. \$225 ONO. Mild steel cabinet, 10.5" H x 19" W x 17" D, hinged top lid, slide in chassis, Collins VFO, Lebgear 5 band multiplier, transformers, etc \$150. Art VK2AS, QTHR, 02 9416 7784

● **Hustler mobile whip antenna** complete with all whips 80, 40, 20, 15 and 10 m, \$150 ONO. Hygain DB 10-15 3 el duo-band beam, 1 kW rated, \$125 ONO. Transformer 240 V - 110 V, 2 kVA, \$100 ONO. Art VK2AS, QTHR, 02 9416 7784

● **DGT-400 satellite system**, s/n 600200044, to receive TV from Germany, England, Italy, Spain and France (one channel each) plus 11 other FM radio stations, includes 2.2 m dish, stand, LNA feed horn and receiver in digital, the lot only \$800. M Mondo VK2AML, QTHR

● **Kenwood TS-830S txcvr**, SM-220 station monitor with bandscope, AT-230 ATU, VFO-230 ext VFO, SP-180 spkr, TS-680 six metre all mode txcvr, all with manuals, \$1600 for the complete station, no offers, all in good condn. P Martin VK2DNO, QTHR, 02 4956 6137

● **P208 MMX computer**, 3.1 G HDD, 32 M RAM, 24X CD-ROM, 1.44 M FDD, 15" colour monitor, 104 keyboard, 33.6 k internal modem, mouse, sound card, mini tower, WIN95, MSWKS, \$1000 or swap for portable. Geoff VK2BGP, 02 6743 6519

FOR SALE VIC

● **Kenwood TS 711-A** all mode 2 m txcvr, s/n 5110320, \$200. SWR bridge, 52 and 75 ohm, \$20. Yaesu Musea FT-1000 linear amp, \$200. Three SR-C146A 2 m FM txcvrs, 5 channels, s/n W160276, W240396 and W240343, two 240 V power supplies, manuals, all for \$100. Coax cable 15 metres long, RG-213U 50 ohm, new, \$30. *Electronic Australia* low distortion audio oscillator (built from Dick Smith kit), \$25. Goodwill frequency meter, 0-100 kHz, 0.1-550 MHz, \$50. *Advance regulated power supply*, 13.6 V 5 A, \$25. *AWA Signal Generator*, s/n 191, 2 MHz-150 MHz, \$30. Yaesu Musea FT-2B 2 m txcvr, with PSU, ATU and SWR bridge, \$100. Three Vico mobile whips with base, 80/40/20 m, \$200. Kenwood TS-120S HF txcvr, with PSU, s/n 0052783, ATU, s/n 5080147, and commercial G5RV antenna, a complete station, \$500. No 62 net Mx II HF AM txcvr, \$50. Home Brew Caw: 14 V DC power supply, \$20. Signal tracer, AF and RF, \$20. VTYM, \$20. All prices negotiable. Disposal deals to ill-health Peter VK3XX, QTHR, 03 9583 2895

● **Yaesu FT-101E** HF txcvr, s/n 8J361411, spare final, \$300. FT-101E, s/n 8J361474, factory modified for Novice use, spare final, \$300. Yaesu FT-7 HF txcvr, s/n 8K110561, \$250. Yaesu FT-23, s/n 6D410747, \$100. Icom IC-551 6 m all mode txcvr, s/n 08888, \$300. All rigs with m.c. handbook and in excellent order. Star 700 receiver, works but needs attention, \$125. Harvey VK3AIU, QTHR, 03 5798 1451

● **Nally self supporting tower**, 42 ft with winch, double pulley vertical lift and heavy duty wire rope, complete with Emotator 1183MXX rotator and controller, 7 wire cable and end plugs, 15 ft 50 mm scaffold pipe included, buyer to arrange removal, offers to: Jack VK3SP, QTHR, 03 9842 1841

● **Yaesu 290R/2** 144 MHz FM txcvr, works OK, \$100 ONO. **Yaesu SP-901** speaker and phone patch module, \$90 ONO. **Heathkit SWR bridge**, old model but works OK, \$40 ONO. **Yaesu FT-747GX HF txcvr**, EC, in original packaging, \$950 ONO. **Ten Tec Scout 555** single band QRP txcvr with 40 m plug in, EC, list price in \$1995, available at \$35 each. **Philmore field strength meter**, \$20. **MFJ 1022 active antenna** 300 kHz to 200 MHz, \$150. **MFJ 1039** set for \$600 ONO. **MFJ 986 3 kW antenna tuner**, covers 1.8 to 3.0 MHz, SWR meter and balun built in, EC, list price \$629, set for \$400 ONO. Harold VK3AFO, QTHR, 03 9696 2414 anytime.

● **FT-101ZD HF txcvr** in working order, with spare valves, CW filter, cooling fan, matching external speaker, mic, DC power lead, and instruction manual, \$400. H Lonsdale VK3DND, QTHR, 03 5153 0717.

● **Command RX-6.9.1** and 3-6 MHz, no dynamotor but good condn, \$100 each. **NOS BC947A control box**, \$70. **NOS FT234A rack** for 1 x Tx, \$50, two available. **Transformer**, 3.4 kV secondary at 0.5 amp, primary 440 or 260 V, heavy, \$150. Will deliver to Melbourne. Peter VK3JZ, QTHR, 03 5156 2053, jupster@net-tech.com.au.

● **Kenwood TM-241A** 2 m txcvr, crystal controlled, complete with crystals, mast and feeder. Noel VK3DPB, QTHR, 03 9306 9231.

● **Estate of George VK3DOK: Yaesu FT-101E HF txcvr**, \$350.00. **Yaesu YD-148** mic, \$30.00. **Icom IC-2GA VHF FM handheld**, 5 W, 2 spare battery packs and charger, \$300.00. **FV-35 2 m RF amplifier**, solid state, FM only, Dick Smith D-2515, \$80.00. **Icom IC-728 HF txcvr**, hand mike, FM module, \$950.00. **Tokyo Hy-Power Labs HC-500A ATU**, \$75.00. **Power supply** 13.8 V, 4 A, \$40.00. **Dick Smith D-1290 40 channel CB radio**, new, \$60.00. **Cushcraft Ringo Ranger ARX-2**, \$120.00. **Terlin Outbacker mobile antenna**, 40/80 m, \$90.00. **Listening antenna**, \$10.00. **12 V Gel batteries**, \$20.00. **Bob VK3BNC**, 03 5339 5317, terlin@glant.net.au.

● **Yaesu FRG-7 receiver**, EC, \$175. **Icom IC-701 100 W HF txcvr**, with matching PSU, etc, EC, \$350. **Yaesu FT-290R** all mode 2 m txcvr, \$250. **Icom IC-225 2 m FM txcvr**, EC, \$100. **Icom IC-229H 50 W 2 m FM txcvr**, \$250. **Icom IC-2308 HF txcvr**, with FM, \$650. **NR VK3OM**, QTHR, 03 5944 3019.

● **Ten-Tec Argonaut 505 txcvr** with PSU, SWR-power meter, manual, in original boxes, ideal QRP operation, \$225. **Yaesu FT-411 2 m handheld txcvr**, sn 9L162574, with manual, carry case, speaker mic, charger, belt clip and door sill bracket, had little use, \$295. Dick VK3JDC, QTHR, 03 5330 1927.

● **Icom IC-901E** multi-band system complete, 10, 6 and 2 m plus 70 cm and scanner monitors, remote mount kit with fibre optic cables, all manuals, etc, \$1800 ONO. Damien VK3RJK, 03 5427 3121.

● **Collect free** an original Hewlett Packard HP9845A computer from the 1970s, immaculate condn with all manuals, data tapes and even a FROM burner, a real collector's item, useful to do engineering calculations on multilevel VHF antennas, to go good to throw out but sadly must do so in two months time so please rescue it! **Electronics Australia** magazine, about 40 issues covering 1965-1980s, \$10 the lot. **Ceramic and mica high voltage RF capacitors**, various values, 800 pF, 1000 pF, 2000 pF, etc, \$12 each. Glenn VK3JFX, 03 9531 9301 (AH), glmoore@bigpond.com.

● **Shack re-adjustment sale: Kenwood TS-440S** all mode HF txcvr, 100 W, gen coverage Rx, 1.8-30 MHz, FM, AM and narrow SSB filters, matching PS-30 heavy duty PSU, SP-230 external speaker, hand mic, MC-50 base mic, operator's manual, mint condn, selling as complete system only, will NOT separate, \$1150. **Kenwood TS-430S** (TS-43X Australian special), all mode HF txcvr, 100 W, 1.8 to 30 MHz, gen coverage Rx, FM filter, exc condn, hand mic, operator's manual, copy service manual, \$ 650. **Power supplies: Yaesu FP-361** and **FP-107E**, 13.8 V 20 A peak, \$150 each or \$275 for the two. **Yaesu FT-411 2 m FM handheld txcvr**, NiCad batt pack, DC car adapter/charger (no AC charger), operator's handbook, exc condn, \$200. **Icom IC-2A** hand held 2 m FM txcvr, external mic/spkr, works well, good condn, \$100. **Icom IC-290A** all mode 2 m FM/SSB txcvr, 10 W, mic, handbook, good condn, \$295. **Icom IC-490A** all mode

70 cm FM/SSB txcvr, 10 W, mic, handbook, matches size and appearance of IC-290A, \$340. Sell both IC-290A and IC-490A for \$600. **Packet system: Shepparton 220 TNC** faithfully constructed, **Microbee XT 640k**, computer, mono screen with appropriate packet software, some cables, a bit grey around the temples but a real fire eater, \$175 the lot. Also some computer spare parts, network cards, systems, monitors, 2 mobile phones (VOXSON analogue). Bruce VK3UV, QTHR, 03 9580 6424, fax 03 9580 8380, mobile 0418 386 030, vk3uv@boommate.com.au

FOR SALE QLD

● **Kenwood TL-922** linear amplifier, s/n 750058, new Eimac finals, \$1700. **Yaesu FT-7000 50 W solid state linear amplifier**, s/n 7H080072, \$1800. **KT-3AXA 6 el triband antenna**, \$500. **HAM-3** rotator with bottom bracket, \$450. **JRC NRD-505** rxcvr, NSD-505 Tx, NBD-505 PSU, \$800 ONO. All manuals. Visiting Brisbane mid August, Sydney end of August. Adolf VK4DHF, 07 4096 6961.

● **Tokyo HC-500 High Power ATU**, \$185. **Shure 444** desk mic, \$110. **Heathkit HD15** phone patch, \$150. **ACI rugged HF ATU**, \$125. **Murdock USA antique communication headphones** P-23, \$110. **Drake MS-4** communication speaker, \$125. **Yaesu HM-12AB** speaker/microphone, \$55. All free delivery. John VK4SKY, QTHR, 0417 410 503.

● **Icom IC-740 HF txcvr**, in excellent operating order and appearance, with two VFOs, passband tuning, notch filter, RTT/KIT, memories on all bands, good reports on transmissions on all bands, sensitive receiver, copy of spec sheet available, \$390. **0-250 V 1.8 A variable auto-transformer**, unused, very useful for workshop and experimental use, \$55. **VK4SZ**, QTHR, 07 4061 3286, johnb@comsnorth.com.au.

FOR SALE SA

● **Kenwood TS-50 HF txcvr**, excellent condn, very little use, \$1400. **8 el log periodic**, assorted CB and amateur gear, all must be sold, send SASE for list. Paul VK3MAF, QTHR, phone/fax 08 8651 2398.

● **Kenwood TR-2400 2 m handheld txcvr**, base stand/charger/main PSU, Shure handheld mic, BC-5 car power supply, Jim VK5JH, 08 8295 8094.

● From estate of the late Bill Teslitz VK5RA. **Yaesu FT991-DL** HF txcvr, s/n BG040713, instruction manual, maintenance manual, hand mic, \$350 ONO. **Yaesu FV901-DL** synthesised scanning VFO, s/n 80102108, top of case marked but OK, \$200 ONO. **Kenwood TR-215A** 2 m h/held txcvr, s/n 8011239, charger, spare battery, manual, carry case, \$150. **Microna HF power meter** with detachable sensor unit, 10/100/1000 W, \$40 ONO. **Oskorblok SWR200** HF/VHF power meter, s/n 70686, \$130 ONO. **Wels SP-300 SWR/power meter**, 1.8 to 500 MHz, 1000 W, \$150 ONO. **AEA Pakratt PK232** multi-mode data controller, operating manual, \$250 ONO. **Yaesu YD140 desk mic**, \$350. **Leader TR dipmeter LDM815**, \$400 ONO. **Tower**, free standing tri-band, approx 12 metres, with Hy-Gain TH6-DXX tri-band beam, Daiwa DC7011 rotor and control unit, a bargain at \$600, buyer to dismantle. Contact Ian VK5QX, QTHR, 08 8250 1708.

FOR SALE TAS

● **Kenwood TS-1405 HF txcvr**, 160-10 m including general coverage receiver 150 kHz to 30 MHz, mint condn, including boxes, manuals. **Kenwood TS-430S HF txcvr**, 160-10 m including general coverage receiver, SSB/CW/AM narrow filter, GC, AM, SSB CW only. Allan VK7AN, 03 6227 1171 or 0417 354 410.

● **Five acres**, three bedroom home, antennas systems, handy shops. V J Kitzey, 03 6257 8471.

● **Heathkit SB230** linear amplifier, uses 8873 triode capable of over 400 W, can be driven by any txcvr such as TS-520, 820, etc, tube almost new, complete with instruction manual, \$600. RA Murphy VK7ARM, 03 6257 0400, fax 03 6257 0411.

WANTED ACT

● **Old valve BC radios** and valves and parts. Les VK1BUC, QTHR, 02 6291 6187 (AH), 02 6261 3019 (BH).

● **Gillette** suitable for 1.6 mm thick aluminium, and width 400+ mm. **Small metal lathe** suitable homebrew work, ie turning shafts and stand-offs, etc. Keith VK1KG, QTHR, 02 6292 6646.

WANTED NSW

● **Factor modem** and/or software, to buy. **Manual for PK-232** to copy or buy. Ted VK2EZQ, QTHR, 019 460 437.

● **Wagner Model M50** marine SSB HF circuit and PC diagrams, or any other, will pay costs copying etc. Keith VK2AXN, QTHR, 02 9489 0304.

● **Shortwave receivers**, military or commercial, working or not, big heavy gear very welcome, Marconi Collins, Racal, etc. I challenge you to give me a hernia! **Pants and old unused military gear** also welcomed! If necessary, I will pay dollars. John L21068, 02 9533 6261.

● **Hi-Gain-V CB 23 txcvr** schematic circuit and data. Jim VK2BGQ, QTHR.

● **YG-88C CW filter** for Kenwood TS-820. John VK2EBP, 02 9831 3810.

WANTED VIC

● **Ham Radio magazine**, Feb and Mar 1970 issues, Nov and Dec 1973 issues. **VHF Communications**, all issues from 1987 to 1996. Will buy complete sets if necessary. Richard VK3ZCL, 03 9571 4065, rgipps@netpage.net.au.

● **Yaesu FT-720R** 2 m/70 cm txcvr circuit diagram and tune-up data, all costs covered. Charlie VK3DCS, QTHR, 03 5331 7425.

● **FRG7** receiver in GWC, will pay \$125 as is, or \$140 with good external speaker. Glenn VK3JFX, 03 9531 9301 (AH), glmoore@bigpond.com.

WANTED QLD

● **Manual for Daiwa CR-4** round controller and Daiwa MR750 rotor. Mike VK4MIK, PO Box 170, Yungaburra, QLD 4872, 07 4096 8302.

● **Uniden 2200 txcvr** remote VFO and speaker, also workshop manual, good condn only. Paul VK4YXR, 070 513 570.

WANTED SA

● **Operating instructions** for Microna 22-202B multimeter. Paul VK3MAF, QTHR, 08 8651 2398.

● **Switch lever** (AVC/OFF/MVC) and any identification plate for BC-348 receiver (being restored). Malcolm VK5BA, QTHR, phone/fax 08 8280 7192, malcolm.haskard@unisa.edu.au.

WANTED WA

● **Kantronics TNC, KAM Plus** or **KPC+**, must have Factor 1 and G-Tor chips and software (IBM). Bob VK6KW, 08 9574 1467, **DAYBREAK CAMPFARM** @ Bigpond.com.

WANTED TAS

● **MFJ-764** dry dummy load. Also any information on the GSRV antenna. Tony VK7CAJ, QTHR, 03 6227 9292 (phone/fax).

MISCELLANEOUS

● **The WIA QSL Collection** (now Federal) requires QSLs. All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Maltchett VK3TL, 4 Sunrise Hill Road, Montrose VIC 3765, tel 03 9728 5350.

● If you got your licence before 1973 you are invited to join the **Radio Amateurs Old Timers Club**. A \$2.50 joining fee plus \$5.00 per year gets you two interesting Journals plus good fellowship. Arthur Evans VK3VQ or Milton Crompton VK3JMN can supply applications forms. Both are QTHR in any Call Book.

● **Summerland Amateur Radio Club Annual Hamfest** will be held on Sunday, 30 August at the SARC Clubrooms, 412 Richmond Hill Road, Goonellabah. All are welcome. Amateur and CB radio displays, computers, electronics, new and old gear for sale, ATM demo, packet and Internet facilities, fox hunt, refreshments, BBQ, lucky tickets. For a stand, contact Carl VK2XLT at 02 6624 3838, or Graeme VK2JG at 02 6685 1336, or the Club's e-mail address sarc@nor.com.au.

WIA Division Directory

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

Division	Address	Officers	Weekly News Broadcasts	1998 Fees
VK1 ACT Division GPO Box 600 Canberra ACT 2601	President Hugh Blenkins Secretary John Wooner Treasurer Lis Devey	VKIYYZ VKIET VKILD	3.570 MHz LSB, 146.950 MHz FM each Sunday evening commencing at 8.00 pm local time. The broadcast text is available on packet, on Internet www.radio.amateur.misc newsgroup, and on the VK1 Home Page http://www.vk1.wia.ampr.org	(F) \$72.00 (G) (S) \$55.00 (Q) \$44.00
VK2 NSW Division 109 Wigram St Parramatta NSW (PO Box 1066 Parramatta 2124) Phone 02 9689 2417 Freecall 1800 817 644 Fax 02 9633 1525	President Michael Corbin Secretary Eric Fossey Treasurer Eric Van De Weyer (Office hours Mon-Fri 11.00-14.00)	VK2YC VK2EPY VK2KUR	From VK2WI 1.845, 3.595, 7.146*, 10.125, 14.160, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup www.radio.amateur.misc , and on packet radio.	(F) \$69.00 (G) (S) \$56.00 (Q) \$41.00
VK3 Victorian Division 40G Victory Boulevard Ashburton VIC 3147 Phone 03 9685 9261 Fax 03 9685 9296	President Jim Uinton Secretary Barry Wilton Treasurer Rob Hailey (Office hours Tue & Thur 0630-1530) e-mail address: vk3wi@vint.com.au Web: http://www.via.com.au/~wievic/	VK3PC VK3XV VK3NC	VK3BWI broadcasts on the 1st Sunday of the month, starts 10.30 am. Primary frequencies, 3.615 LSB, 7.085 LSB, and FM(R)s VK3RML 148.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3WI on Victorian packet BBS and WIA VIC Web Site.	(F) \$75.00 (G) (S) \$61.00 (Q) \$47.00
VK4 Queensland Division GPO Box 636 Brisbane QLD 4001 Phone 07 5496 4714	President Colin Gladstone Secretary Peter Harding Treasurer Alistair Erick e-mail address: wiaq@brisbane.dialic.com.au Web: http://www.wiaq.powerup.com.au	VK4AG VK4JPH VK4FTL	1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 14.342 MHz SSB, 21.175 MHz SSB, 28.400 MHz SSB, 29.220 MHz FM, 53.725 MHz FM, 147.000 MHz FM, 438.500 MHz (Brisbane only), and regional VHF/UHF repeaters at 0900 hrs EAST Sunday. Repeated on 3.605 MHz SSB & 147.000 MHz FM at 1930 hrs EAST Monday. Broadcast news in text form on packet under WIAQ/VK4NET.	(F) \$74.00 (G) (S) \$60.00 (Q) \$48.00
VK5 South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone 08 8352 3428 Fax 08 8264 0463	President Ian Hunt Assistant Secretary Graham Wiseman Treasurer Joe Burford Web: http://www.vk5wia.ampr.org/	VK5QX VK5EU VK5UJ	1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.700 FM Mid North, 146.800 FM Mildura, 146.825 FM Beresina Valley, 146.900 FM South East, 146.925 FM Central North, 147.825 FM Gawler, 438.425 FM Beresina Valley, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.085 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday, 3.585 MHz and 146.875 MHz FM Adelaide, 1930 hrs Monday.	(F) \$75.00 (G) (S) \$61.00 (Q) \$47.00
VK6 West Australian Division PO Box 10 West Perth WA 6872 Phone 08 9351 8873	President Wally Howse Secretary Christine Bastin Treasurer Bruce Hedland-Thames Web: http://www.faroc.com.au/~vk6wia/ e-mail: vk6wia@faroc.com.au	VK6KZ VK6ZLZ VK6OO	146.700 FM(R) Perth, at 0830 hrs Sunday, relayed on 1.825, 3.560, 7.075, 14.116, 14.175, 21.185, 29.880 FM, 50.150 and 438.525 MHz. Country relays 3.582, 147.350(R) Busselton and 146.900(R) Mt William (Bunbury). Broadcast repeated on 146.700 at 1900 hrs Sunday, relayed on 1.865, 3.563 and 438.525 MHz; country relays on 146.350 and 146.900 MHz.	(F) \$62.00 (G) (S) \$50.00 (Q) \$34.00
VK7 Tasmanian Division PO Box 271 Riverside TAS 7250 Phone 03 6327 2096 Fax 03 6327 1738	President Ron Churcher Secretary Paul Godden Treasurer John Klop Web: http://www.wia.tasnet.net	VK7RN VK7PG VK7KCC	146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.825 (VK7RMD), 3.570, 7.080, 14.130, 52.100, 144.150 (Hobart), repeated Tues 3.590 at 1930 hrs.	(F) \$74.00 (G) (S) \$60.00 (Q) \$46.00
VK8 Northern Territory (part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz).	Note: All times are local. All frequencies MHz.			
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